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A Revision of the Bombyliidae (Diptera) of Southern Africa. Parts II and III. By A. J. Hesse, B.Sc., Ph.D., F.R.E.S., F.R.S.S.Afr., Department of Entomology, South African Museum.

THESE two parts of my revision of the Bombyliidae of Southern Africa constitute a continuation of Part I which was published in Vol. XXXIV of these annals. The work has taken me far longer to accomplish than I anticipated, but, owing to many other routine duties in connection with the Department of Entomology and the Museum in general, my undivided attention could not be given to this revision alone. For long periods, especially during the years of the last war, very little time was devoted to this undertaking.

In these two parts I have departed somewhat from the method of presentation adopted in Part I. In the dichotomous keys to the genera and species the opposing and contrasting couplets have now been placed in juxtaposition, a procedure which will now render the identification of the species more easy. The substitution of the terms 'vestiture' and 'middle cross vein' for 'pubescence' and 'discal cross vein' respectively is less confusing and less subject to erroneous interpretation. On the other hand the more important references to the literature dealing with the respective genera and species have again been listed under each genus and species, thus rendering the compilation of a long list of literary references at the end of the revision, as was at first contemplated in Part I, unnecessary. The non-technical and purely convenient terminology which I have used for the hypopygial structures of the males has also been retained, pending some future clarification of the correct homology of such structures in Diptera in general.

As these two parts are already too bulky, the contemplated appendix to Part I, in which it was proposed to describe the many new forms which have accumulated since 1938, has not been added. Most of this material will therefore have to be dealt with separately in future parts of these annals or elsewhere. Only the two new genera recorded in the general key to the genera are described at the end of Part III.

#### ACKNOWLEDGEMENTS

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#### GENERAL AND SYSTEMATIC

These second and third parts of my revision deal with all the genera and species of Southern Africa which have been included in the Second Division (Bombyliidae Tomophthalmae) by Bezzi (pp. 136–379, The Bombyliidae of the Ethiopian Region, 1924). The genera Nomalonia Rondani, Henica Macquart, Peringueyimyia Bigot and the genera of the Tomomyzinae, which Bezzi included in his First Division (Bombyliidae Homoeophthalmae), have however been referred to the Second Division with which these two parts deal. As was stated in Part I (vol. XXXIV), the above-mentioned genera, though agreeing with the genera of the First Division in many respects, agree with those of the Second Division and differ from all those enumerated in Part I, in having the occipital region behind the eyes distinctly bilobate and the hind part of the head more distinctly concave or excavate. In some other respects they appear to constitute links between the two divisions.

The rest of the genera, belonging to Bezzi's Second Division, show a certain amount of uniformity or homogeneity in salient features, which enable us to separate them very easily from genera of the First Division. Such distinctive characters as a bilobate occiput, large and easily detachable head which is deeply excavate behind, bisected eyes, the presence of a characteristic collar-like ring of hairs or bristly hairs across the front part of the thorax, the sometimes distinctive, mottled or spotted wing-patterns, and an often peculiar type of wing-venation, give them a distinct facies of their own.

An introductory key to all the known Bombyliid-genera of Southern Africa, given below, will enable the student of this Dipterous family to separate the various genera belonging to the two great Divisions.

# Key to the Divisions, Subfamilies, Groups and all the known Genera of the South African Bombyliidae

1. (a) Occipital region behind eyes not distinctly bilobate, usually flattened or only slightly concavely hollowed out, or merely with a slight or shallow, central, groove-like depression or shallow furrow down the occiput posterior to ocellar tubercle, never with a very deep, slit-like channel or sulcation leading into a deep and conspicuous concavity; hind margin of eyes entire, rarely sinuate or emarginate and, if so, occiput

is not bilobate, and always without a bisecting line; common base of second and third veins in wings usually very much shorter or very short, rarely longish and, if long, hind margin of eyes not indented; second vein usually originating at an acute angle from third vein; vein between submarginal cells without a basally directed appendix or stump at its base. . . 2 (Division I) (as Part I in Ann. S. Afr. Mus., xxxiv, 1938)

(b) Occipital region behind eyes distinctly bilobate, often strongly so, with a distinct deep and often long, central, slit-like channel or sulcation, often beginning in a foveate depression, leading into a deep and conspicuous concavity in head behind; hind margin of eyes in most genera distinctly indented or subangularly or angularly emarginate and, if not, occiput at least is bilobate, more often with a distinct or faint, abbreviated, bisecting line extending forwards from indentation and, if not present, occiput at least is bilobate; common base of second and third veins usually longer or very much longer, rarely shortish and, if so, hind margin of eyes distinctly indented; second vein more often originating at right angles or very nearly so from third vein; vein between submarginal cells often with a basally directed stump at its base and, if not, other characters do not differ.

45 (Division II) (as Parts II and III in this volume)

- (a) Thorax without a distinctly visible, broadish and well-marked-off pronotal or prothoracic part, forming a conspicuous ring or collar, its mesonotal part merely abutting on occiput and hiding any faint or narrow indication of such a prothoracic part and the hidden latter part always without bristles; scutellum usually more or at least slightly convex, not markedly flattened; femora, especially hind ones, not markedly thickened or incrassate or spindle-shaped, and without dense and markedly long spines; tibiae, especially hind ones, without elongated, flattened and fluted scales; antennae without any or with only feeble, scarcely visible, and non-bushy scaling on some of the joints.
  - (b) Thorax with a distinctly visible, broad, well-developed, conspicuous and well-marked-off pronotal or prothoracic part, forming a conspicuous ring or collar in front of mesonotal part, the anterior part of which and the pronotal part as well being provided with stoutish and conspicuous bristles; scutellum markedly flattened; femora, especially hind ones, tending to be markedly thickened or incrassate medially and spindle-shaped and with dense, markedly long spines; tibiae, especially hind ones, with elongated, flattened and fluted scales; antennae with very dense, conspicuous and bushy scaling on all the joints.

Toxophorinae (Toxophora Meig., pp. 1028 and 1029, Part I, vol. XXXIV)

- 3. (a) Body not markedly elongate, not simulating or mimicking that of Aculeate Hymenoptera or Vespidae; metasternal region normal, not strongly or broadly developed; abdomen not markedly elongate and petiolate, not Sphegid- or Vespid-like; legs and even hind ones not abnormally long; front femora without any callus-like area. 4
  - (b) Body markedly elongate, simulating or mimicking that of Aculeate-Hymenoptera or some Vespidae; metasternal region strongly and broadly developed; abdomen markedly elongate and with a slender stalk or petiole, ending in a club as in Sphegids and some Vespids; legs, especially hind ones, abnormally elongate and like those of Sphegids or Vespids; front femora with an elliptical, callus-like and microscopically sculptured area. Systropinae (Systropus Wied., pp. 990 and 991, Part I, vol. XXXIV)
- 4. (a) Wings usually with a normal number of cells and with two or three, not less than two, submarginal cells; antennae usually triarticulate, joint 3 however sometimes ending in small terminal joints or a style, rarely obviously quadriarticulate and, if so, at least two submarginal cells present; occiput usually flattened, slightly hollowed or only slightly convex; eyes not tending to be shifted forwards; vestiture usually dense, markedly dense, rarely sparse and short; tibiae usually with distinct rows of spicules and well-developed or conspicuous apical spurs even if only short; basal joint of posterior tarsi without a basal process or hook below in 33; last sternite in 33 with the upper apical angles rounded or only subangularly prominent or only slightly produced; moderately large or large, rarely very small forms.
  - (b) Wings with the cells much reduced in number, with only one submarginal cell present, the position of the second submarginal cell being occupied by the first posterior cell,

sometimes even without a marginal or discoidal cell, and sometimes even with only a single basal cell; antennae distinctly and obviously quadriarticulate, joint 4 distinctly evident or well developed; occiput markedly, sometimes prominently and convexly, developed; eyes shifted or tending to be shifted far forwards; vestiture almost entirely absent or very much reduced, greater part of body being almost bare; tibiae with only fine pubescence, no distinct spicules being present and with the apical spurs much reduced, inconspicuous or vestigial; basal joint of posterior tarsi in 33 sometimes with a basal hook-like process; last sternite in 33 with the upper apical angle on each side produced into a spine- or hook-like process; very small or minute forms.

40 (Cyrtosiinae) (p. 966, Part I, vol. XXXIV)

- 5. (a) Face, even if short, more developed, sometimes much or conspicuously so to a variable extent; buccal cavity usually larger or more developed and, if small, face at least longer or more prominent; labral part of proboscis without any distinct, dense or conspicuous scaling; antennal joint 1 not conspicuously dilated or tumidly or globularly extending apically below or with an inflated, bladder- or lobe-like appendage below, at most only incrassate or clavate apically; vertex and frons rarely equally broad throughout or equally so in both sexes and, if nearly so, it is at least slightly narrowed on vertex or it is not roundly convex discally and not slightly transversely depressed anteriorly behind antennae; ocellar tubercle, even if well developed, distinctly much narrower and smaller, not markedly broad or broad and centrally grooved towards its base, and always with three well-developed ocelli; wings usually well developed, normally broad, their base not pedunculate and, if shortish and narrowed basally, an alula or a vestige of one is usually present and the third posterior cell not markedly narrowed or convergent apically.
  - (b) Face either almost absent or facial and buccal region depressed and transformed or modified; buccal cavity either smallish or much reduced and transformed; labral part of proboscis (if latter be present) with distinct, dense and conspicuous scaling, especially towards base, or proboscis and mouth parts abnormally transformed or reduced; antennal joint I either with its lower apical part extending out tumidly or lobe-like or the joint with a large, conspicuous, inflated, bladder- or lobe-like extension or appendage below; vertex and frons markedly broad, equally broad throughout and in known 33 as broad as in \$\phi\_2\$, and either roundly convex or broadly depressed discally and usually somewhat transversely depressed anteriorly behind antennae; ocellar tubercle markedly and conspicuously broad, sometimes centrally grooved posteriorly, its ocelli widely separated, sometimes reduced in size, the posterior ones reniform and usually much larger than anterior one which may even be absent and represented by a small scar or puncture; wings relatively feebly developed, relatively short, sometimes remarkably narrow and basally pedunculate; alula absent; third posterior cell markedly narrowed and convergent apically.
- 6. (a) Face remarkably short or almost wanting, the antennae situated at apex of buccal cavity; buccal cavity normally developed and lodging a long proboscis with scales on it above basally, and slender, elongate palps; antennal joint 1 with its lower apical part produced into a smaller tumid or globular extension; antennal joint 3 longer, less bulbular basally; frons convex discally; ocellar tubercle centrally grooved posteriorly; occiput distinctly more flattened, without any tumid, lobe-like or raised prominence on each side behind upper corner of eye; scutellum larger and broader; wings markedly narrower, pedunculate basally; second vein originating much nearer base of third vein; upper cubital branch straighter, first posterior cell closed and stalked apically; legs more developed, longer, with long and strongly developed spicules and spurs on tibiae and tarsi; pulvilli longer and broader; hairs on body densely and conspicuously developed, much longer and also with stouter bristly hairs and bristles on thorax and scutellum; scales on body broader, longer and more densely developed on head, pleurae, abdomen and legs.

(b) Facial part in front of antennae depressed or excavate, the actual face however longer, delimited by a transverse suture in depression; buccal part transformed and reduced in form of a slightly raised boss-like elevation passing lower down into a central down-

Oniromyia Bezz. (Cythereinae) (p. 986, Part I, vol. XXXIV)

wardly directed, triangular spine-like process (? remnant of anterior rim of reduced buccal cavity) and below or behind it on each side an oval, inflated lobe (palp), and behind or below these a supporting, central, lip-like, downwardly directed process (? remnant of posterior medial part of reduced buccal rim); antennal joint 1 below with a larger, more conspicuous, bladder- or lobe-like appendage; frons broadly depressed discally; ocellar tubercle not grooved, but rounded, posteriorly; occiput with a more distinct, broadish, central depression down head behind tubercle which is bounded on each side behind upper corner of eye by a distinct, turnid or raised, lobe-like prominence; scutellum smaller, distinctly narrower; wings distinctly broader, less pedunculate basally; second vein originating much nearer middle cross vein than base of third vein; upper cubital branch more curved; first posterior cell only narrowed apically, not stalked; legs distinctly feebler, much shorter, without any spines on femora and with only very short and small spicules and spurs on tibiae and tarsi; pulvilli narrower, shorter, more spine-like; hairs on body more feebly developed, finer and much shorter, without any stiffer hairs or bristles on any part of body; scales on body finer, narrower and smaller even where dense as on abdomen and . Xenoprosopa n. gen. (Xenoprosopinae n. subfam.) (in Appendix, p. 942)

- 7. (a) Third antennal joints rod-like, club-shaped, pointed or if slightly modified they are either broad, flattened, incrassate, clavate or even excavate apically, but never ending apically in a bifid process or in an upper and a lower spine-like process or in a distinct subapical upper spine or hook-like process; hairs on genae not concentrated in a forwardly or upwardly directed tuft or brush; wings with four posterior cells and always with a discoidal cell; abdomen in φφ with segment 8 normal, not produced on each side below into a lappet- or lobe-like process; thorax only rarely very convex and humped in appearance.

  8 (Bombyliinae) (p. 40, Part I, vol. XXXIV)
  - (b) Third antennal joints ending apically in either a distinct upper and lower spine-like process or in a distinct subapical process and, if not, wing has only three posterior cells; hairs on genae often aggregated in a forwardly or upwardly directed tuft or brush and, if without such a brush, third antennal joints modified apically; wings sometimes with only three posterior cells and, if with four, third antennal joints end apically in two spine-like processes or in a subapical process; abdomen in \$\pi\$\$ usually with segment 8 produced on each side below into a lobe-like process; thorax more often distinctly more convex above and humped in appearance.
- 8. (a) Anal cell in wings open, not angularly acute and closed or stalked apically; third antennal joints not clavate, thickened or excavated apically and rarely ending in a distinct terminal joint or terminal elements and, if with longish terminal joints, anal cell is open; hind femora at least usually spined below to a variable extent and, if without spines, anal cell is open.
  - (b) Anal cell angularly or sharply acute apically, very rarely not closed and distinctly stalked apically; third antennal joints clavate, thickened or excavated apically or ending in distinct terminal joints or elements; femora without any spines below. . 26
- 9. (a) Scutellum normal, not bilobate or bispinose apically; marginal cell in wings normal, not markedly and abnormally dilated apically; second vein straight or normal, not arcuately curved or convex hindwards towards hind border of wings; third antennal joint without a long and slender terminal joint.
  - (b) Scutellum distinctly bilobate or bispinose apically; marginal cell markedly and conspicuously broad or dilated apically; second vein arcuately curving hindwards towards hind border of wing; third antennal joint ending in a remarkably long and slender terminal or fourth joint. . Othniomyia Hesse (p. 707, Part I, vol. XXXIV)
- 10. (a) First posterior cell in wings acute or angularly acute and closed apically, either with a distinct stalk of variable length or merely acute and sessile on hind border, never distinctly or broadly open, and in cases with a moderately long stalk the vein between first and second posterior cells not markedly S-curved; alula usually well developed, broadly lobe-like; first antennal joints close or closer together, very rarely thickened or very incrassate; femora rarely without spines below and, if without spines, first posterior cell is closed.

	(b)	First posterior cell open or broadly open on hind border, not sessile, acute and stalked apically and, if in very rare cases this cell is stalked, the vein between first and second posterior cells is more distinctly S-curved and alula is much reduced or vestigial; first antennal joints separated or more widely apart and thickened or incrassate; femora without spines below.
11.	(a) (b)	Frons, face and genae dull, not smooth and shining, hairy to a variable extent; face normal, not markedly conically produced and separated from frons by a distinct transverse furrow; alula in wings always broad and lobe-like; basal comb of wings distinct and more or less well developed; metapleurae usually hairy and with a distinct tuft of hairs or bristly hairs just before base of halteres and above posterior spiracles; femora, especially hind ones, spined below to a variable extent 12 Frons, face and genae very smooth, bare and brilliantly shining black; face markedly and conically prominent, separated from frontal part, just in front of antennae, by a deep transverse furrow; alula much reduced, very narrow, not lobe-like; basal comb
		very feebly developed or wanting; metapleurae bare, but with a tuft of hairs in front of halteres; femora without any spines below.  Sisyrophanus Karsch (p. 523, Part I, vol. XXXIV)
12.	(a)	Hind margin of eyes without a distinct deep sinuosity or emargination; third antennal joints with only a shortish terminal joint or style; vein between first and second posterior cells in wings joining on to or received by vein separating the latter cells from second submarginal cell; from with only hairs, without a row of stout macrochaetal bristles on each side.
	(b)	Hind margin of eyes with a distinct deep sinuosity or comparatively deep emargination; third antennal joints with a distinctly longer and more conspicuous terminal joint or joints; vein between first and second posterior cells passing straight to hind border, being joined by or receiving the vein between first posterior and second submarginal cells as a cross vein; frons in $\varphi\varphi$ at least with a row of two or more very stout and conspicuous macrochaetal bristles on each side.  **Eurycarenus** Lw. (p. 507, Part I, vol. XXXIV)**
13.	(a) (b)	First basal cell in wings distinctly much longer than second basal cell
14.	` '	
	(b)	Claws with a distinct and conspicuous basal tooth; pulvilli entirely absent; vestiture with comparatively fewer bristly elements on body, relatively much shorter hairs and bristles on abdomen and with conspicuous and broadish bands of very dense, pale or white hair-like scales across tergites.  Zinnomyia Hesse (p. 387, South African Animal Life, ii, 1955)
15.	(a)	Two submarginal cells present in wings.  Bombylius L. (p. 41, Part I, vol. XXXIV)
	(b)	Three submarginal cells present in wings. Subgen. Triplasius Lw. of Bombylius (p. 114, Part I, vol. XXXIV)
16.	(a)	Head across eyes markedly broad, at least as broad as or slightly broader than broadest part of thorax; frons broad, especially in $\mathfrak{PP}$ , without a distinct central groove in $\mathfrak{FP}$ and without a transverse depression or groove apically in $\mathfrak{PP}$ ; discoidal cell in wings very broad, distinctly more truncate apically, its apical vein long, usually longer than middle cross vein; squamae more distinctly bilobed, the smaller lobe nearest thorax comparatively large and broad; vestiture on face and body below always strikingly or conspicuously frosty, cretaceous or chalky white; claws more often almost straight, only slightly curved, rarely sickle-shaped; pulvilli always short, not extending beyond
		middle of claws, even in 33 Anastoechus Ost. Sack. (p. 290, Part I, vol. XXXIV)

in  $\delta\delta$  and always with a transverse impression anteriorly in  $\varsigma\varsigma$ ; discoidal cell more acute apically, its apical vein distinctly or much shorter and usually shorter than middle cross vein; squamae less distinctly bilobed, the smaller lobe only indicated, scarcely distinct; vestiture on face and body below only rarely frosty or chalky white and then not uniformly or very conspicuously so; claws almost always sickle-shaped, either rapidly or more gradually curved down to apex, rarely almost straight; pulvilli long in both sexes, usually extending to much beyond middle of claws.

Systoechus Lw. (p. 292, Part I, vol. XXXIV)

- - (b) Antennal joints 1 and 2 markedly elongate, conspicuously thickened and incrassate, joint 2 being especially elongate, incrassate and barrel-shaped; vertex in 99 more or less tumidly raised or convex; ocellar tubercle very prominent and elevated; face poorly developed, only bluntly rounded; palps obviously and distinctly triarticulate; only two submarginal cells in wings.

Conophorina Beck. (p. 705, Part I, vol. XXXIV)

- 19. (a) Occipital part on each side behind eyes normal, not broad and somewhat inflated; face narrower and, if convex or slightly conical, not tumidly prominent medially; third antennal joints rod-like, slender and pointed, not elliptical or shortly spindled shaped and not covered with dense spinule-like hairs; wings, if infuscated, not mottled or mothled.
  - (b) Occipital part on each side behind eyes broad and somewhat inflated or tumidly prominent; face relatively broadly and tumidly prominent; third antennal joints distinctly spindle-shaped, covered with dense, spinule-like pubescence; wings extensively and characteristically mottled or marbled.

Prorachthes Lw. (Syn. = Cheilohadrus Hesse, p. 674, Part I, vol. XXXIV) (in Appendix, p. 934)

- 20. (a) Body shorter or more plump, the abdomen more ovate and shorter; wings rarely with the basal comb wanting or with the alula much reduced or vestigial and, if so, vein between submarginal cells distinctly more S-curved; antennae with joint 3 stouter, more rod-like, usually shorter and more bluntly pointed and, if slender and sharply pointed, first joints are thickened and more widely apart; apical joint of palps slender, not clavate or thickened, nor directed upwards; metapleurae usually with some hairs, rarely entirely bare and, if bare, hind femora without spines.
  - (b) Body more elongate and cylindrical, the abdomen markedly elongate; wings without a basal comb, the alula much reduced or vestigial and vein between submarginal cells less S-curved; antennae with joint 3 distinctly more slender, elongate and pointed; apical joint of palps short, thickened and directed upwards; metapleurae entirely bare.
- 21. (a) First antennal joints more distinctly separated, very much thickened and incrassate or barrel-shaped; joint 3 elongate, slender, spindle- or sub-spindle-shaped, its apical part very slender; face somewhat produced, spout-like, bare; alula in wings much reduced and axillary lobe also narrowish and reduced, the base of wings thus narrowed; middle cross vein very much beyond middle of discoidal cell; first posterior cell acute or much narrowed apically, sometimes closed and stalked; vestiture with the hairs very dense, fine, shaggy, puff-like, and those on head in front and on antennae very long, dense and conspicuous; metapleurae bare; femora with dense, longish hairs below, without any spines; last sternite in 33 elongate and scoop-like.

Dischistus Lw. s. str. (p. 527, Part I, vol. XXXIV)

(b) First antennal joints contiguous, scarcely thickened, usually slender; joint 3 rod-like or more conical, not spindle-shaped; face broadly rounded, not prominent or much

produced, often hairy; alula and axillary lobe well developed, broadish and lobe-like, the base of wings thus not markedly narrowed; middle cross vein very much before middle of discoidal cell, at or near middle or only a little beyond middle; first posterior cell, even if narrowed apically, always open; vestiture with the hairs much shorter, less dense, not very shaggy, sometimes comparatively sparse and short, those on head in front less dense and much shorter; metapleurae with some hairs and scales and always with a metapleural tuft of hairs or scales; femora always with some spines below on at least hind ones and, if with hairs in addition to spines, the former are much shorter; last sternite in 33 shortish, broad, truncated or slightly rounded, not scoop-like.

- 22. (a) Vestiture on body with the individual hairs and bristles not distinctly frayed or fimbriate apically, without very dense, flattened, lanceolate scales on pleurae and body below and with scaling, if present, denser only on body above; from in ξξ with a distinct transverse impression anteriorly; antennal joint 1 not distinctly thickened; antennal joint 3 without distinctly visible short hairs, its terminal joint usually longer, conical, more conspicuous; basal comb of wings slightly or distinctly more developed; discoidal cell longer and narrower; anal cell not tending to be very much narrowed or subacute apically; pulvilli, even if reduced, still more conspicuous at base of claws.
  - (b) Vestiture on body above with the individual hairs and bristles frayed or fimbriate at their apices, with very dense, hair-like, whitish or cinnabar-red scales on body above and dense, flattened, lanceolate ones on face, antennae, pleurae and venter; frons in φφ convex, without a transverse impression and face broadly rounded and not prominent; antennal joint I slightly, but distinctly, thickened; antennal joint 3 with distinct short hairs, its terminal joint minute or in form of a hair-like stylet; basal comb feebly developed; discoidal cell shorter, broad, triangular or bell-shaped; anal cell tending to be narrowed or even acute apically; pulvilli much reduced, vestigial, scarcely visible in φφ, only indicated in βδ. Lepidochlanus Hesse (p. 613, Part I, vol. XXXIV)
- 23. (a) Eyes only subcontiguous, or narrowly or broadly separated to a variable extent above in 33 and broadly or very broadly so, usually from 3 to 5 times width of ocellar tubercle, in \$\phi\phi\$ froms with the transverse depression in \$\phi\phi\$ at about or just a little beyond middle; frons and face dull, not shining; antennal joint 1 usually longer; antennal joint 3 shorter and even if longish never more than about 1½ times length of joints 1 and 2 combined, slightly curved and gradually narrowed apically; middle cross vein in wings usually very much before middle, rarely near or at middle, of discoidal cell; the latter distinctly broader, more truncate apically; basal comb usually slightly more developed; hairs on body on the whole shorter in \$\delta\phi\$, less sparse in \$\phi\phi\$, with some hairs on face in both sexes and without silvery or black tufts on sides of antennae; scaling on body above without opalescent, gleaming, silvery white or dense golden ones on thorax and abdomen; body usually with much red or reddish on face, pleurae and abdomen; posterior lateral angles of last sternite in \$\delta\phi\$ more rounded; pulvilli sometimes short.

Doliogethes Hesse (p. 545, Part I, vol. XXXIV)

(b) Eyes always in direct or actual contact for a short distance above in ♂♂ and not very broadly separated, usually only about or less than 3 times width of ocellar tubercle, in ♀♀; frons with the transverse depression in ♀♀ farther forwards, just behind antennae, and often with a central depression leading up to tubercle; frons and face in ♀♀ and face in ♂♂ very often brilliantly shining black; antennal joint 1 usually shorter, less than or only about ♀½ times length of joint ₂; antennal joint ₃ more elongate, at least or usually more than 1½ times combined length of 1 and ₂, straight and rod-like; middle cross vein in neighbourhood of middle of discoidal cell; the latter more narrowed apically; basal comb smaller; hairs on body on the whole sparser, more so in ♀♀, rarely dense in ♂♂, that on face more often wanting, and rarely without a silvery tuft on each side of antennae in ♀♀; scaling on body above denser and more conspicuous, especially in ♀♀, more often with opalescent, glittering, bluish or greenish, metallic ones on frons and body above in ♀♀ and with silvery white ones on abdomen above in both sexes or especially in ♂♂; body, including scutellum, predominantly

black, rarely with reddish on pleurae or abdomen; posterior lateral angles of last sternite in 33 more angular or angularly produced; pulvilli reaching apices of claws.

\*Chasmoneura Hesse (p. 586, Part I, vol. XXXIV)\*

- 25. (a) Antennal joint 3 from side not markedly broadened towards base, not distinctly hollowed out below in ♂♂, not conspicuously broad and bellows-shaped in ♀♀, without long, stoutish, bristly hairs or bristles near its base above and long, slender hairs near its apex below; antennal joint 1 not markedly thickened; frons in ♀♀ without or with a less distinct, transverse depression, which, if indicated, is slightly farther back; hairs on face and genae shorter and sparser; base of wings above without pubescent hairs; alula with a distinct fringe. . Adelidea Macq. (p. 680, Part I, vol. XXXIV)
  - (b) Antennal joint 3 from side markedly broader and dilated near base, hollowed out or slightly excavated below in 33, very strikingly broadened basally and bellows-shaped in 99, with long, bristly hairs or bristles near its base above and also near its apex below in both sexes; antennal joint I distinctly thickened and incrassate; from in 99 with a more distinct, transverse depression just behind antennae; hairs and bristly hairs on face and genae distinctly longer and denser; base of wings above with distinct pubescent hairs; alula with an almost absent, very sparse or vestigial fringe.

    Sosiomyia Bezz. (p. 702, Part I, vol. XXXIV)
- 26. (a) Head very broad, sometimes conspicuously broad, as broad as or broader than thorax; eyes in 33 broadly separated, at least as broad as broad ocellar tubercle and sometimes very much broader; frons broad; facial region usually very broad, inflated or tumid and sometimes with a characteristic dense brush of bristly hairs constituting a circumoral brush; third antennal joints clavate, thickened or excavated apically, their terminal elements reduced or absent; thorax not humped; three submarginal cells sometimes present in wings; last sternite in 33 notched medially; vestiture on body longer and denser.

  27 (Corsomyza-group) (p. 712, Part I, vol. XXXIV)
  - (b) Head normal, not markedly broad; eyes in 33 contiguous or in contact above in front of tubercle for a variable distance; frons narrow or small; facial region narrow, small or conical, not inflated or tumid and without a circumoral brush; third antennal joints tapering and ending in a terminal joint or elements, their apical part not clavate or excavated; thorax usually humped in appearance; only two submarginal cells present; last sternite in 33 not notched medially; vestiture much shorter and sparser.
- 27. (a) Facial region less tumid or not so markedly tumidly prominent; frons also less tumid; sides of face, face and genae much less inflated; buccal cavity situated more in front of head; first antennal joints usually longer, not distinctly thickened and barrelshaped; proboscis usually longer, at least always projecting beyond antennae. 28

- (b) Facial region remarkably and abnormally broad, markedly tumidly prominent or inflated; frons in front more tumidly prominent; sides of face (or face) and genae very tumid or inflated; buccal cavity situated more below head due to inflated facial region; first antennal joints short or very short, thickened or even sub-barrel-shaped; proboscis very short, confined to buccal cavity or at least not projecting beyond antennae.
- 28. (a) Head in front markedly broad, the facial region very broad and sides of face and genae more tumid; inner margins of eyes distinctly diverging down sides of facial part in both sexes, the head below being much broader than vertex, even in φφ; antennae inserted much higher up, at least half or very nearly half the distance between front ocellus and edge of buccal rim; hairs on body distinctly denser, more conspicuous, especially in δδ, those on facial region in form of a distinct and characteristic, dense, circular or circumoral brush, even in φφ and, if not conspicuous in some φφ, hairs on face at least more numerous; empodium between claws and pulvilli usually slightly longer, more developed.

  Corsomyza Wied. (p. 714, Part I, vol. XXXIV)
  - (b) Head in front slightly narrower, the facial region not conspicuously broad and sides of face and genae not very tumidly prominent; inner margins of eyes down sides of facial part subparallel in ♀♀ at least, the head below only about as broad as or scarcely broader than vertex and, if broader as in some ♂♂, facial region is distinctly less broad; antennae inserted much lower down, either just above buccal rim or at much less than half distance between buccal rim and front ocellus; hairs on body very much sparser, the ♀♀ sometimes almost bare, and in both sexes without a distinct, circular and dense circumoral brush; empodium less distinct and shorter.
- 29. (a) Eyes broadly separated above in both sexes, the interocular space on vertex very much broader than ocellar tubercle; inner margins of eyes parallel or subparallel in both sexes; buccal rim in facial part protruding prominently, spout-like, especially its upper part; antennae inserted higher up nearer middle of distance between buccal rim and front ocellus; proboscis longer; palps longer, more slender; a distinct stoutish, prealar bristle present; pleurae almost entirely bare and shining and a small metapleural tuft absent; wings comparatively shorter; alula more reduced or vestigial; axillary lobe also much narrower, more reduced; legs with much sparser hairs and with only inconspicuous or without any bristly hairs apically above last tarsal joint.

  Megapalpus Macq. (p. 759, Part I, vol. XXXIV)
  - (b) Eyes more narrowly separated above in 33, only by width of ocellar tubercle or a little more, very much narrower than in ♀♀; inner margins of eyes in 33 diverging, not parallel; buccal rim not protruding or spout-like; antennae inserted almost immediately above buccal rim; proboscis usually much shorter; palps less elongate, usually thicker; no distinct stoutish prealar bristles present; pleurae with more, though sparse, hairs even in ♀♀, and with a small metapleural tuft usually present; wings distinctly longer; alula broader, less reduced; axillary lobe much broader, often markedly triangularly lobe-like; legs with slightly more numerous hairs on femora, even in ♀♀, and with at least one or a few long bristly hairs on last tarsal joint apically above.

    Hyperusia Bezz. (p. 764, Part I, vol. XXXIV)
- 30. (a) Front half of frons and sides above antennae very broad and inflated, the most prominently inflated cephalic part thus above antennae; antennae inserted immediately above buccal cavity, the first joints contiguous basally, more thickened and sub-barrelshaped; joint 2 with a dense coat of fine, spinule-like hairs; joint 3 clavate or distinctly more broadened apically; proboscis slightly longer, more slender, its labellar lobes narrow, more pointed, not fleshy; hair in 33 at least longer, denser, with a well-developed, dense, circular, circumoral brush and with a small metapleural tuft present; two or three submarginal cells in wings; tibiae not feathery in appearance, without dense hairs; last tarsal joint without or with only inconspicuous hairs apically above.

  Callynthrophora Schin. (p. 775, Part I, vol. XXXIV)
  - (b) Face, sides of face and genal parts very broad and markedly inflated, the entire facial part below antennae thus more inflated; antennae inserted very high up, very much nearer front ocellus than buccal cavity, the first joints widely separated at base, at least as wide as space between posterior ocelli; joint 2 without any visible spinule-like

hairs; joint 3 more rod-like, not markedly clavate apically; proboscis very short, stoutish, more or less confined to buccal cavity, spinulated below, its labellar lobes broad and fleshy; hair in 33 at least distinctly shorter, sparser, and without a distinct, well-marked-off circumoral brush, but with the hairs on lower facial and genal parts dense, and without a metapleural tuft; three submarginal cells in known forms; tibiae more hairy and at least hind ones feathery in appearance, due to dense hairs; last hind tarsal joint at least with one or a few longish hairs apically above.

Gnumyia Bezz. (p. 780, Part I, vol. XXXIV)

31. (a) Thorax more convex, more humped in appearance; hairs on body longer and denser; scales present on body to a variable extent; frons less convex, more or less transversely depressed anteriorly, especially in 99; face less conically prominent, not or scarcely demarcated from frontal part; first antennal joints 2 or more times as long as second joints; third vein in wings not bending towards discoidal cell at level of middle cross vein; base of second submarginal cell broader, more truncate; legs longer, more slender; tibiae with longer and more strongly developed spicules and middle ones with a distinct longer apical spur below; front coxae longer.

32 (Crocidium-group) (p. 785, Part I, vol. XXXIV)

(b) Thorax less convex, less humped; hairs on body very short and sparse, the head and body almost bare; scaling on body absent; frons in ♀♀ at least more convex, not depressed anteriorly; face more conically prominent, distinctly more delimited from frontal part; first antennal joints shorter, less than 2 times as long as second joints; third vein distinctly bending towards discoidal cell at level of middle cross vein; base of second submarginal cell angularly acute; legs much shorter, stouter; tibiae with feebler or poorly developed spicules and middle tibiae without a long spur apically below; front coxae very much shorter, plumper.

Heterotropinae (Heterotropus Lw.) (p. 819, Part I, vol. XXXIV)

- 32. (a) Antennae much shorter; first joints not thickened and distinctly much shorter, much shorter than third joints or very much less than 6 times length of second joints and first and second joints combined also very much shorter than third (including terminal elements); body not simulating that of a Therevid.
  - (b) Antennae elongate; first joints conspicuously elongated and somewhat thickened, slightly longer than or subequal in length to third joint (including terminal elements) or quite 6 times length of second joints and first and second joints combined subequal in length to or slightly longer than third; body with a marked resemblance to that of a Therevid. . . . . . . . . . . . . Apatomyza Wied. (p. 818, Part I, vol. XXXIV)
- 33. (a) Head slightly less spherical; occiput more normally concave; frons in φφ becoming distinctly wider anteriorly, the inner margins of eyes very distinctly diverging anteriorly and distance between eyes across buccal part considerably broader than across face or frons in both sexes; genae distinct, comparatively broad or very broad, the furrow on each side of buccal rims some distance away from inner margins of eyes; frons and face sometimes brilliantly shining and usually with a yellow transverse band across facial part in φφ; apical joint of palps slightly longer, more clavate apically; wings less elongate, hyaline or spotted; alula broader, more distinctly lobe-like; axillary lobe usually broader, triangularly produced and rounded posteriorly; knobs of halteres much shorter, much less than twice as long as broad; thorax less markedly humped and body on the whole shorter, not resembling that of an Empid.

Crocidium Lw. (p. 786, Part I, vol. XXXIV)

(b) Head more spherical; occiput less concave; frons in ♀♀ scarcely or not becoming much wider anteriorly, the inner margins of eyes tending to be parallel or subparallel even down sides of face and distance between eyes across buccal part only a little or scarcely broader than across face or frons; genae almost absent, represented along inner margins of eyes only as a narrow line, almost absent or even obliterated at about middle and, if indicated, only narrowly visible on each side below (the groove on each side of buccal cavity thus only separating inner margins of eyes from buccal rims); frons and face usually dull, not shining; apical joint of palps usually shorter, distinctly more ovate; wings more elongate, tinged or infuscated; alula distinctly more reduced, narrower; axillary lobe not so triangularly prominent, even if broadish, more rounded;

knobs of halteres more developed, usually larger and longer, nearly or quite twice as long as broad; thorax distinctly more humped and body more elongate, in general appearance suggesting that of an Empid or a Culex.

Adelogenys Hesse (p. 811, Part I, vol. XXXIV)

- 34. (a) Face usually very short, sometimes almost non-existent; antennae with joint 1 very short, never more than about 1½ times length of joint 2; joint 3 modified, ending apically in either an upper and a lower spine-like process or in a subapical upper process or spine; hairs on genae on each side not concentrated into a forwardly and upwardly directed brush or tuft; wings with 3 or 4 posterior cells and with or without a discoidal cell, the apical cross vein of latter (if present) not or scarcely S-curved; upper vein of second basal cell without a knob-like thickening near its base; segment 8 of abdomen in 99 without a distinct lobe-like process or lappet ventrally on each side; tarsi without a patch or clump of a few longer spicules basally below on basal joint.

  35 (Phthiriinae) (p. 822, Part I, vol. XXXIV)
  - (b) Face usually distinct and conical; antennae with joint 1 longer, usually longer than 1½ times length of joint 2; joint 3 not modified, only tapering to a fine point; hairs on genae on each side produced into a forwardly and upwardly directed brush or tuft; wings always with only 3 posterior cells and always with a discoidal cell, the apical cross vein of which is very markedly S-curved; upper vein of second basal cell always with some knob-like thickening near its base; segment 8 of abdomen in ♀♀ with a distinct lobe-like process or lappet ventrally on each side; tarsi with a distinct patch or clump of a few longer spicules basally below on basal joint.

39 (Geroninae) (p. 866, Part I, vol. XXXIV)

- 35. (a) Four posterior cells in wings; discoidal cell present; second submarginal cell very obtuse basally, its upper vein sharply bent at base; third antennal joints more spindle-shaped, with a distinct and often prominent upper apical or subapical, spine-like process, often forming a symmetrical or unsymmetrical bifid process with a distinct lower apical process or prominence, and with conspicuous, short, bristly hairs on the joints above, especially in 33; tibiae with distinct, though feeble, spicules; last tarsal joint not very distinctly or markedly thickened or broader than the others; body in \$\partial \partial \text{sometimes}\$ with much yellow even on head, thorax and pleurae, and with the hair on the whole longer and denser. Phthiria Meig. (p. 824, Part I, vol. XXXIV)
  - (b) Only three posterior cells in wings; discoidal cell sometimes absent; second submarginal cell distinctly much more acute to very acute basally, its upper vein scarcely or only slightly bent at base; third antennal joints more oval or equally broad throughout (side view), with only a single subapical or apical upwardly directed, spine-like process just in front of which there is dorsally also a depression or hollow lodging the terminal style, and either without or with only fine and inconspicuous bristly hairs on the joints above, even in 33; tibiae without any distinct or visible spicules, apparently covered only with fine hairs or pubescence; last tarsal joint distinctly and visibly thickened and broader than the other joints; body without yellow markings on head and thorax and with the hair on body distinctly less developed, the greater part of it being more often almost bare.
- - (b) A discoidal cell present; second submarginal cell more obtuse basally; eyes in 33 in contact above; hair on body very short, very sparse, the greater part of body almost bare and with shorter and fewer hairs on coxae and only fine pubescence on femora and tibiae; thorax slightly more elongate, narrower, more humped in appearance; last sternite in 33 not conically produced.

Oligodranes Lw. (p. 861, Part I, vol. XXXIV)

37. (a) Eyes in 33 in actual contact above for some distance, the upper facets being coarser than lower ones; palps usually longer, more developed, the apical joint usually slightly thicker than basal one; hair on body distinctly more developed in both sexes

(b) Eyes in both sexes comparatively broadly separated, the upper facets in 33 not differentiated from lower ones; palps very short, the apical joint apparently not thicker than basal one; hair on body much sparser and very much shorter in both sexes, that on legs distinctly shorter and without a distinct row of longer hairs on tibiae; legs on the whole stouter; wings comparatively shorter.

Subgeneric form of Apolysis (p. 848, Part I, vol. XXXIV)

- 38. (a) Thorax markedly convex above or humped, the pleurae compressed and markedly high; head more globular; genae much narrower and the width from eye to eye across buccal cavity considerably narrower, not, scarcely, or only a little broader than across face; eyes in 33 in actual contact for a long distance or at least distinctly contiguous, the line of contact rarely not impressed; frontal triangle in 33 usually small; occllar tubercle more elevated, prominently pimple-like on vertex; palps shorter; wings usually narrower and less elongate; base of second submarginal cell rarely with a tendency to be opposite apex of discoidal cell, distance between middle cross vein and base of second submarginal cell thus rarely very much or distinctly shorter than that between former and fork of second and third veins; spicules on tibiae extending from near their bases.
  - (b) Thorax less markedly convex or humped, the pleurae less high; head slightly more dorso-ventrally depressed; genae very broad and width from eye to eye across buccal cavity very much broader, considerably broader than across face or frons anteriorly; eyes in 33 not in actual contact above for a long distance, distinctly separated or only subcontiguous at narrowest part by a space as broad as front ocellus, the line of subcontiguity (if present) not deeply impressed; frontal triangle in 33 thus much larger; ocellar tubercle not markedly elevated; palps slightly longer, more slender; wings more elongate; base of second submarginal cell with a tendency to be more or less opposite apex of discoidal cell, distance between it and middle cross vein thus much shorter than, rarely subequal to or as long as, distance between the latter and fork of second and third veins; spicules on tibiae almost confined to their apical half or part. . . Pseudoamictus Big. (=Pseudempis Bezz.) (p. 958, Part I, vol. XXXIV)
- 39. (a) Head with dense, silvery white scaling and whitish hairs or at least with white hairs on sides of frons and face, upper parts of genae and along hind margin of eyes, without any black hairs on frons in ♀♀ or on antennae in both sexes; middle part of genae bare and genae sometimes gleaming ivory whitish or yellowish; rest of hair on body above in ♂♂ denser, slightly longer, never very dark or blackish above, in ♀♀ also distinctly denser, pale or whitish above, never with black ones intermixed; inner margins of eyes in ♂♂ not, scarcely, or not distinctly sinuate opposite antennae; interocular space in ♀♀ broader, usually about twice width of occllar tubercle; first antennal joints closer together, never longer than about 3 times length of joint 2, not dilated or thickened basally, without long, dense and bushy hairs; wings never infuscated; second submarginal cell much shorter, about as broad apically as long along lower vein or at least never more than twice as long as broad apically; apical vein of discoidal cell only slightly S-curved; alula distinctly more developed, more lobe-like or tongue-like; knobs of halteres rarely darkened above.

Geron Meig. (p. 867, Part I, vol. XXXIV)

(b) Head without silvery white scaling and white hairs on sides in front, no silvery scaling behind eyes, the face and sides of frons being entirely bare, without any hairs, with only a duplicated row of short, blackish, bristly hairs on each side of middle of frons in φρ and with entirely or predominantly blackish ones on first antennal joints in both sexes; genae with only extreme upper part bare, the middle and lower parts with long hairs and genae never gleaming ivory whitish; rest of hair on body above less dense and on the whole shorter in both sexes, more so in φρ, mainly dark or with much black hair above in δδ, and in φρ with very dark or blackish, short, bristly ones on head, thorax and scutellum; inner margins of eyes in δδ distinctly and more conspicuously sinuate opposite antennae; interocular space in φρ much narrower, less than twice

width of tubercle; first antennal joints distinctly wider apart, longer, usually more than 3, rarely only about 3, times length of joint 2, often markedly thickened or dilated basally, especially in 33, and more often with very long, conspicuous, bushy, black hairs in 33; wings sometimes tinged cinereous, smoky or even very darkly; second submarginal cell always very much longer, distinctly much longer along lower vein than twice apical width, its sides thus more parallel; apical vein of discoidal cell rarely not distinctly or markedly S-curved; alula distinctly less developed, only slightly lobe-like, less produced; knobs of halteres more often darkened above.

Amictogeron Hesse (p. 918, Part I, vol. XXXIV)

- 40. (a) A distinct and normal marginal cell present in wings; discoidal cell absent or present; two basal cells always present; head below not sulcate longitudinally; terminal (or fourth) antennal joints broad, more joint-like, not slender and style-like; body larger, more than 2 mm. long and with wings more than 2 mm. long, the integument, especially black parts, more brilliantly shining; hair, even if sparse, distinctly longer and more conspicuous.
  - (b) A marginal cell wanting; discoidal cell present or absent; only a single basal cell sometimes present; head below longitudinally sulcate; terminal (or fourth) antennal joints distinctly more slender and style-like; body smaller, less than 2 mm. long, and with wings only about or less than 2 mm. long, the integument duller, less shining; hair very short, less conspicuous.
- 41. (a) Body more slender, elongate, the thorax more roundly humped; head elongate, the occipital region markedly elongate and convex, not flattened; eyes shifted forwards; head below produced posteriorly into a blunt, spine-like process and the eyes touching or very nearly touching below; frons foveately depressed in both sexes, the space on vertex equally broad in both sexes and inner margins of eyes distinctly converging apically; antennae shorter, with joint 3 comparatively broader; proboscis more slender, its labellar lobes very short and pointed; palps not discernible; wings with microtrichiae along hind border markedly conspicuous and the fine hairs on membrane distinct; first basal cell not shorter or very much narrower than second one; discoidal cell present or absent; anal cell open; axillary lobe narrow; legs more slender, less conspicuously hairy; front and middle tibiae at least longer than femora; hind tarsi in 33 normal; hair on body shorter, less developed.
  - (b) Body more plump, not slender and elongate, the thorax less roundly humped; head normal, subglobular, the occipital part short and normal, flattened; eyes situated normally; head below short and normal, not produced basally, and the eyes very broadly separated below; from not foveately depressed, very small in 33, the eyes in 33 being in actual contact above, the space on vertex in ♀♀ broad and inner margins of eyes at least subparallel; antennae more elongate, with joint 3 more slender and elongate; proboscis plumper, stouter and with longer labellar lobes; palps small, but discernible; wings with the microtrichiae short and inconspicuous and without conspicuous, fine hairs on membrane; first basal cell much shorter and narrower than second one; discoidal cell absent; anal cell acute apically, closed or provided with a stalk; axillary lobe broader, well developed, lobe-like; legs stouter, relatively shorter, more conspicuously hairy; front and middle tibiae scarcely longer than femora, the hind ones even shorter; base of basal joint of hind tarsi in 33 produced into a hook-like, curved process; hair on body distinctly longer and denser, especially Onchopelma Hesse (p. 973, Part I, vol. XXXIV) . . . .
- 42. (a) Discoidal cell present in wings; basally directed process on head below shorter.

  Platypygus Lw. s. str. (p. 968, Part I, vol. XXXIV)
  - (b) Discoidal cell absent; basally directed process on head below more developed, longer and more distinct.

Ceratolaemus Hesse subgen. of Platypygus Lw. (p. 969, Part I, vol. XXXIV)

43. (a) Wings with two basal cells; second vein originating from third as a fork; fourth vein originating from apical cross vein of second basal cell; submarginal cell much longer; last posterior cell very much shorter; indentation or notch in inner margin of eyes opposite antennae feeble or almost indistinct; anterior ocellus nearer to posterior ones.

(b) Wings with only a single basal cell; second vein only represented in apical part of wings; fourth vein originating near apex from lower vein of single basal cell; submarginal cell much shorter; last posterior cell very much longer and elongate; indentation in inner margin of eyes opposite antennae distinctly much deeper and more conspicuous; anterior ocellus situated distinctly more forward.

Doliopteryx n. gen. in footnote p. 39, Part I, vol. XXXIV) (in Appendix, p. 936)

- 44. (a) Discoidal cell absent in wings. . Empidideicus Beck. (p. 979, Part I, vol. XXXIV)
  - (b) Discoidal cell present.

Anomaloptilus Hesse subgen. of Empidideicus (p. 983, Part I, vol. XXXIV)

- 45. (a) Antennae closer together, space between them usually less than or only about length of basal joint, rarely wider apart; plumula or small tuft of hair on ligamentous connection between squama and scutellum usually absent; second vein in wings usually originating acutely or obtusely, rarely at right angles, either at or very near base of third vein or at some point between base of latter and middle cross vein which is either farther away from middle cross vein than length of latter itself or nearer base of third vein than to middle cross vein; hind margin of eyes either sinuous or indented or not indented and either with or without a short, abbreviated, bisecting line extending forwards from such an indentation if present.
  - (b) Antennae more widely separated, space between them usually more or considerably more than length of basal joint; plumula always present and well developed; second vein originating at right angles, or almost at right angles, from third vein either at a point not farther away from middle cross vein than length of latter itself or in very close proximity to middle cross vein or even directly opposite and in line with it and never near base of third vein or some considerable distance away from middle cross vein; hind margin of eyes always with a distinct sinuation or fairly deep angular indentation or emargination and rarely without a short bisecting line or an indication of one extending forwards from this indentation.
- 46. (a) Facial and buccal part of head remarkably transformed and aberrant, depressed or excavated; mouth parts very aberrant, represented by a slight, central, boss-like elevation from the lower part of which projects a short, central, blunt, downwardly directed, spine-like process (medial anterior part of buccal rim), bounded on each side below by an oval, inflated lobe (? palps) and below these by a supporting, central, lip-like projection (medial posterior part of buccal rim); actual face below or in front of antennae short, its anterior margin evident as a slight transverse ridge in depressed part; antennae somewhat close together, with hairs on all the joints, joint 1 produced below into a large, conspicuous, densely haired, bladder-like or lobe-like extension and joint 3 stoutish, bluntly tapering; from remarkably broad, more or less equally broad throughout; occiput not deeply excavate behind, only slightly concave, very broadly and shallowly depressed groove-like behind and below ocellar tubercle, bounded on each side by a turnid, lobe-like prominence; ocellar tubercle remarkably broad, slightly elevated boss-like, its posterior ocelli wide apart and reniform and its anterior one much reduced; hind margin of eyes only feebly sinuous, not indented and not bisected; scutellum narrowish, subtumid; wings without a basal comb and with the discoidal cell short; third posterior cell markedly narrowed and converging apically; legs shortish, without any spines on femora below; spicules and spurs on tibiae and tarsi feebly developed, very short; vestiture in form of fine hairs and scaling, not densely developed, without any stiff, bristly hairs or bristles on any part of body, and hairs on abdomen markedly short and poorly developed.

Xenoprosopa n. gen. (Xenoprosopinae n. subfam.) (in Appendix, p. 942)

(b) Facial and buccal parts of head not markedly transformed, either normally developed or if mouth parts are wanting, facial and buccal parts not depressed or excavated; mouth parts usually well developed, in form of a proboscis of variable length and linear, rod-like or unmodified palps in a distinct buccal cavity and, if rarely these structures are not present, the palps are not in form of lobes and face is not depressed; face usually well developed or even long and conically produced and, if short, buccal cavity and mouth parts are normally developed; antennae usually with hairs only on joints 1 and 2, without a conspicuous lobe-like extension below joint 1, at most with

only a slight thickening apically below and joint 3 usually less stoutish or shaped differently; frons relatively much narrower and, even if broadish anteriorly, usually much narrower on vertex than anteriorly; occiput very deeply excavated behind, with a very much deeper, more slit-like or channel-like groove or sulcation behind ocellar tubercle, bounded on each side by a more distinct occipital lobe; ocellar tubercle narrower, smaller and with its three ocelli more or less equally developed and at least with anterior one also well developed; hind margin of eyes more often emarginate or indented and with a bisecting line and, if without these, facial region at least not aberrantly transformed; wings usually with a basal comb and with a relatively longer discoidal cell; third posterior cell either not narrowed apically or not so characteristically converging; legs longer, usually more developed, usually with a variable number of spines on at least middle and hind femora; spicules and spurs on tibiae and tarsi distinctly more strongly developed, longer and, if minute or absent, other characters do not differ; vestiture denser and usually with at least some stiffer bristly hairs or bristles on thorax, scutellum, coxae and abdomen, those or hairs on latter rarely very fine and short. . . . . . .

- 47. (a) Face markedly short, the apex of buccal cavity almost abutting on antennae; proboscis long, projecting very considerably beyond buccal cavity; genal furrows well developed, deep; hind margin of eyes not emarginate or indented or even with a tendency to be distinctly sinuous; third antennal joints elongate, sub-rod-like or slightly spindle-shaped, never broadened knob- or club- or bulb-like basally; vestiture with distinctly more numerous, much stouter and stiffer bristles on thorax, sides of thorax, scutellum and on coxae; wings usually distinctly spotted or marbled; legs more strongly developed, with more numerous, more conspicuous and stouter spines on femora below, especially hind ones, and more strongly developed spicules and spurs on tibiae; body plumper, more bee-like or Tachinid-like. . . . . 48 (Cylleniinae) (p. 27)
  - (b) Face not markedly short, sometimes markedly and characteristically produced or even prominently snout-like, the apex of buccal cavity always some distance away from antennal insertions even if face is not produced; proboscis relatively very much shorter, projecting only slightly beyond buccal cavity, very often almost or entirely confined to latter; genal furrows less distinct or only indicated along their upper part; hind margin of eyes sometimes with a tendency to be more sinuous or it is distinctly indented or emarginated and often bisected as well; third antennal joints either short, elliptical and very broad, or broadened knob- or club- or bulb-like basally to a variable extent; vestiture without any or with distinctly less stout, less stiff, fewer and less conspicuous bristles among rest of hair; wings rarely spotted or marbled to the same extent; legs weaker, less strongly developed, without any or with much fewer and weaker spines on femora and without any or finer and more slender spicules and spurs on tibiae; body usually narrower, relatively more elongate and, if broadish, with a more flattened abdomen.

    50 (Bombyliidae Tomophthalmae of authors)
- 48. (a) Occipital region more developed, broader, longer behind tubercle and on sides behind eyes, its central sulcation longer, narrowly slit-like and ocellar tubercle not distinctly marked off from occipital lobes by a suture; eyes in 33 contiguous or in contact for some distance in front of tubercle; frons in both sexes much narrowed, less convex; facial part black, with dense hair on sides; first antennal joints long, incrassate and with long, dense hairs; third antennal joints not excavate on inner side apically, the style terminal; wings with dark spots on cross veins; only two submarginal cells present; second vein originating very near base of third and much recurved at its end; first posterior cell acute apically, closed and stalked; first main vein and halteres without scales above; tergite 2 shorter, not so characteristically transversely depressed across base; last tergite (sternite) broader, incised gap-like medially in 33; tarsi normal in both sexes, their claws longer, curved down apically; pulvilli long in both sexes; vestiture denser and finer, in form of denser bristly hairs and bristles on thorax, longer and denser hairs on abdomen and dense hair-like scaling.

Peringueyimyia Bigot (p. 46)

(b) Occipital region less developed, very much shorter behind tubercle and on sides behind eyes, its central sulcation very much shorter, broader and gap-like and ocellar tubercle distinctly marked off from occipital lobes by a suture; eyes in 33 distinctly separated above in front of tubercle; frons in both sexes much broader, more convex; facial part in both sexes almost or entirely smooth, yellowish or ivory yellowish; first and second antennal joints very short and with very sparse and short hairs on first; third antennal joints obliquely excavated on inner side apically; wings usually fenestrated, with subopaquely whitish areas on cross veins and at bases of posterior cells on a dark background; three submarginal cells present; second vein originating at right angles far from base of third and less recurved at its end; first posterior cell broadly open; base of first main vein and halteres with distinct scaling above; tergite 2 distinctly longer and more transversely depressed basally; last sternite in 33 not incised gap-like medially; tarsi with joints 3-5 in 33 modified below, joint 3 padded below and 4 and 5 somewhat excavated and padded; claws shorter, less curved; pulvilli confined to base of claws; vestiture in form of dense, more broadish scaling, arranged on abdomen in a pattern of whitish spots and transverse bands and sparser bristles.

- - (b) Marginal cell not divided into apartments by cross veins; facial part usually without any or with less numerous hairs on side of upper part of buccal cavity.

Nomalonia Rond. (p. 33)

- 50. (a) Face only (or the facial region composed of front part of frons and the face) markedly and characteristically conically produced, well-marked-off or very prominently snout-like. . . . . . . . . . . . . . . . . . 51 (Tomomyzinae) (p. 50)
- 51. (a) Medial anterior part of frons roundly boss-like or tumidly bulging; antennae inserted in a deep transverse depression formed between frontal tubercle and conically produced facial part; hind margin of eyes distinctly indented and with a faint, abbreviated, bisecting line; interocular space on vertex about equally broad in both sexes, about as broad as ocellar tubercle; third antennal joints more rapidly broadened knob-like basally, thus more bulb- or onion-shaped at base, the rest rod-like; three submarginal cells present in wings; second vein originating very close to base of third, its apical part not curved forwardly before the end and latter less recurved; third posterior cell markedly narrower apically than basally; abdomen with a characteristic Syrphid-like colour pattern of black discal or dorsal patches and yellowish or orange yellowish lateral markings or spots; last tergite in \$2\$ with a distinct genital appendage on each side.

  Antonia-group (Antonia Lw.) (p. 134)
  - (b) Medial anterior part of frons not so roundly boss-like or tumidly bulging; antennae not inserted in a deep transverse depression between a boss-like bulge and a raised conical facial part; hind margin of eyes only slightly sinuous and, if emarginate or subangularly indented, without a bisecting line; interocular space on vertex in 33 distinctly and obviously much narrower than in \$\phi\$; third antennal joints, though sometimes broadened basally, usually less rapidly so and not onion-shaped at base; wings normally with only two, rarely with three, submarginal cells; second vein rarely originating very close to base of third, usually with a distinct and characteristic forward bend or kink near its apex; third posterior cell not markedly narrower apically than basally; abdomen without a Syrphid-like colour pattern of black and yellow markings; last tergite in \$\partial \phi\$ without a genital appendage on each side. 52
- 52. (a) Anterior apical part of frons more tumidly prominent and forming a part of the conical and characteristic facial cone; antennae inserted in distinct sockets or fossae; joint 3 shortish, broad, ovoid or elliptical; joint 1 not cup-like and not lodging joint 2 in it; ocellar tubercle elongated, raised or ridge-like longitudinally, the front ocellus far forward; occiput distinctly longer, its central channel or sulcation beginning in a distinct or conspicuous foveate depression; integument of body, especially thorax and abdomen above, distinctly or more conspicuously punctured or sculptured and sides of tergites sometimes foveately depressed on each side; vestiture in form of decumbent, pile-like scaling and inconspicuous hairs, no distinct bristles being present; a meta-

- notal tuft wanting; apical part of second vein in wings very much recurved, the sinuosity very deep; femora without any spines below; tibiae without any or with minute and insignificant spicules and spurs.

  53 (Tomomyza-group) (p. 50)
- (b) Conical facial part formed by face alone, the anterior or apical part of frons not forming part of this facial cone; antennae not inserted in prominent fossae; joint 3 usually knob- or bulb-like at base and tapering apically; joint 1 broad, cup-like and lodging the narrower, more transverse joint 2 in it; ocellar tubercle not elongated, not ridge-like and front ocellus not so far forward; occiput relatively very much shorter, its central sulcation not beginning in a well-defined foveate depression; integument of body above not characteristically punctured or sculptured and tergites not foveately depressed on each side; vestiture in form of distinct and much denser scaling above and on pleurae, hairs, and also distinct prealar, postalar and scutellar bristles; a metanotal tuft present; apical part of second vein not so deeply recurved; femora always with some, even if only small, spines on at least hind ones; tibiae with distinct spicules and longish spurs on middle and hind ones.

  54 (Plesiocera-group) (p. 94)
- 53. (a) Abdomen cylindrical, more convex, curved and humped in appearance, usually with a distinct, sometimes deep, preapical, foveate depression on each side of tergites 2-4 (or 5), its integument distinctly and coarsely punctured, usually sparsely and coarsely in apical parts and scabrously or rasp-like basally on sides; body and legs predominantly reddish brown; decumbent pile or scaling on abdomen gleaming brilliantly silvery whitish, metallic brassy yellowish or golden and chequered in appearance; face markedly short; anterior part of frons always longer, forming a much greater part of conically produced facial cone, its outer apical angles usually more prominent or produced; antennae always inserted much farther forward at apex of conically produced facial part; ocellar region distinctly more raised boss-like or humped and conspicuously ridge-like in both sexes, more so in 33, and this ridge usually separated from inner margin of eyes on each side by a groove-like depression.

Pantostomus Bezz. (p. 51)

- (b) Abdomen, even if convex, distinctly less humped in appearance, sometimes more laterally compressed or sometimes broad and somewhat flattened, without any or with only very small, shallow or scarcely discernible foveate depressions on each side of middle tergites, its integument covered with fine setiferous punctures or with more uniform coarse puncturation; body and legs predominantly black and, if legs are yellowish or brownish in part, they have more black; fine decumbent scaling or hairs on abdomen either predominantly black or, if whitish or silvery, not chequered in appearance; face usually distinctly longer, rarely very short and, if so, abdomen is not humped, centrally ridged or with deep foveate depressions; anterior part of frons shorter, forming part of the conically produced facial cone to a very much lesser extent, its outer apical angles, bounding antennal fossae, less prominent, usually not produced and, if angularly prominent, face is longer; antennae inserted much farther back, rarely near apex of face; ocellar region only slightly raised, never high or humped.

  \*\*Tomomyza\*\* Wied. (p. 70)
- - (b) Alula distinctly broader, more developed and distinctly more lobe-like; axillary lobe also distinctly broader, more lobe-like; hind margin of eyes more distinctly and more conspicuously subangularly emarginate; facial cone tending to be more rounded or tumid and not sharply pointed apically.
- 55. (a) Wings usually entirely vitreous or glassy hyaline; base of second vein rarely or not bent at right angles to third and not with a basally directed stump at this angle; costal cell shorter, not or scarcely extending to opposite forward bend in second vein; antennal joint 1 cup-shaped, but not markedly broad; joint 3 more club-shaped, more gradually narrowed apically; vestiture with the hairs much shorter, sparser and usually less conspicuous and those on abdomen and across hind margins of tergites very much shorter, with the scales above usually broader, flatter, more lanceolate,

not very fine and pile-like; femora without any distinct spines on front and middle ones; front tarsi relatively longer relative to tibiae, especially in 33, and usually as long as or distinctly longer than tibiae; front claws rarely not markedly reduced or vestigial and, if not much reduced, other characters do not differ. . . . . 56

(b) Wings with the extreme base, costal cell and basal half of first basal cell and in \$\varphi\$ even entire basal cell and bases of marginal and first submarginal cells slightly, but distinctly, infuscated; base of second vein rapidly bent down at right angles to third and with a distinct basally directed stump at this angle; costal cell distinctly longer, extending beyond or slightly beyond forward bend in second vein; antennal joint 1 (text-fig. 31, a) markedly broad and cup-shaped; joint 3 more rapidly narrowed apically, distinctly more bulb-shaped at base; vestiture with the hairs distinctly longer, more conspicuous and those on abdomen and across hind margins of tergites longer, more conspicuous, giving the abdomen a more hairy appearance, with the scales above much finer, more hair-like or pile-like; all the femora with spines below, especially in \$\varphi\$; front tarsi distinctly shorter relative to tibiae and shorter than latter in both sexes; front claws scarcely or only slightly shorter than middle ones.

Coryprosopa n. gen. (p. 118)

- - (b) Occiput distinctly very much shorter behind ocellar tubercle, its central sulcation much broader, wider and more gap-like, the two lobes not touching apically and space between them as broad as tubercle; scales on body above distinctly finer and more hair-like, the individual ones on sides of thorax, even if denser than on disc, not conspicuously broader and not forming a white band; front tibiae with distinct, though minute, spicules and spurs; tarsi, especially front ones in \$\pi\$, tending to be distinctly shorter than tibiae, with distinct spinules on front ones below; front claws scarcely much smaller than middle ones, not vestigial.

    \*\*Conomyza\* n. gen.\*\* (p. 114)
- 57. (a) Hind margin of eyes (text-fig. 32, a) only slightly, but distinctly, emarginate; scutellum with its hind margin normally rounded or subangularly rounded; femora with more numerous spines below, even on front ones, especially in φφ.

Prorostoma n. gen. (p. 121)

- (b) Hind margin of eyes (text-fig. 32, b) more distinctly and more deeply subangularly emarginate; scutellum either with a characteristic bilobate or incised hind margin or with a distinct indication of such an indentation, the hind margin tending to be tumid and to form two shining lobes; femora with fewer spines below and the front ones usually unarmed in both sexes.

  Epacmoides n. gen. (p. 125)
- - (b) Wings with three submarginal cells, the membrane more strongly and conspicuously wrinkled in appearance; first posterior cell more acutely narrowed apically and some-

times stalked; inner margins of eyes in 33 in contact for some distance in front of occillar tubercle and in 99 usually separated on vertex by more than twice distance between outer margins of posterior occill; terminal joint of antennal joint 3 long, slender and with a longish style; abdomen narrower, cylindrical in 33, the sides of tergites much flexed in below and in 99 more pointed apically; genital brush in 99 terminal; vestiture with the hairs and bristly elements relatively much sparser, the body less hairy in appearance, but the bristles on abdomen very often very strongly and conspicuously developed, with the scales broader, more lanceolate and those on pleurae, coxae and venter more densely developed; spines on femora, especially hind ones and more especially in 33, abnormally long, slender and bristle-like, the basal ones the longest, and with the spicules in outer lower row on tibiae as well as apical spurs abnormally and strikingly long, slender and bristle-like.

63 (Pteraulax-group) (p. 332)

59. (a) Second vein in wings without a characteristic forward bend near its apex and originating more or less acutely proximally near base of third; middle cross vein always distinctly or much beyond middle of discoidal cell; costal cell much shorter; indentation in hind margin of eyes without a bisecting line; antennae with a dense and conspicuous tuft or brush of hairs on joints 1 and 2 below; joint 3 broadened clublike, bulb-like or golf-driver-club-like at base, the slender part usually less markedly slender, terminating in a scarcely discernible fine style; hairs on body denser and more shaggy, those on sides of abdomen very dense, shaggy and in form of dense tufts; a distinct metanotal tuft present; abdomen broad and flattened.

Lomatia-group (Lomatia Macq.) (p. 144)

- (b) Second vein with a distinct forward bend or kink near its end and originating either obtusely more or less midway between base of third vein and middle cross vein or much nearer the latter, or acutely nearer base of former; middle cross vein at about, or more usually before, middle of discoidal cell; costal cell distinctly much longer; indentation in hind margin of eyes with a distinct, though sometimes faint, short, bisecting line; antennae with only normally dense hairs and no dense tuft on joints 1 and 2 below; joint 3 either very rapidly broadened onion-like at base and with the rest very slender, or more conical and only gradually broadened basally, but in both cases terminating in a distinct small joint bearing a fine style or even a few fine hairs as well; hair on body comparatively less dense, less shaggy, and that on sides of abdomen not in form of dense tufts; a metanotal tuft absent; abdomen usually more elongate, not markedly flattened.
- 60. (a) Wings comparatively narrower, with the alula and axillary lobe narrower; second vein originating near base of third or more obtusely about midway or near middle between base of third vein and middle cross vein; discoidal cell longer and narrower; middle cross vein only a little before middle of discoidal cell; frons narrower just behind antennae and usually slightly longitudinally impressed in front of ocellar tubercle in φφ; buccal cavity or space between eyes below much broader; spines on femora and spicules on tibiae longer, more conspicuous.

61 (Aphoebantus and Petrorossia-group) (p. 309)

(b) Wings distinctly broader, with the alula and axillary lobe distinctly broader lobe-like; second vein originating almost at right angles very near middle cross vein; discoidal cell shorter and broader; middle cross vein much before middle of discoidal cell; frons very broad just behind antennae and in ♀♀ not or scarcely impressed in front of tubercle; buccal cavity or space between eyes below comparatively very narrow; spines on femora and spicules on tibiae shorter and inconspicuous.

Chionamoeba-group (Chionamoeba Sack, in part) (p. 351, 352)

- 61. (a) Third antennal joints conical or pyriform, only gradually and less rapidly broadened basally, the base not onion-shaped and the terminal joint bearing a style only; second vein in wings originating at an acute angle nearer base of third; vestiture on body denser, composed of fairly dense hair and dense scaling; hind margin of scutellum often shining.
  - (b) Third antennal joints in form of a broadened onion-like base and a slender apical part, ending in a small terminal joint bearing a fine style and also a crown of a few hairs;

second vein originating obtusely more or less midway between base of third vein and middle cross vein; vestiture apparently slightly less dense, composed of sparser hairs and fairly dense hair-like scaling; hind margin of scutellum dull.

Petrorossia Bezz. (p. 309)

- - (b) First posterior cell open apically; squamae not markedly developed; face (in profile) more subconically prominent, the apical part of buccal cavity deep and apical part of face appearing to project over it due to presence of a conspicuous brush or dense tuft of bristly hairs across apex of face, the rest of facial surface without longish hairs; antennal joint 1 distinctly shorter, cup-shaped; antennal joint 3 more gradually broadened basally, more conical, the base thus not so obviously bulb- or club-like; vestiture on frons in form of shortish hairs, shorter and very much sparser ones on antennae and only very short and sparse pile on face, the greater part of latter and the frons being densely covered with flattened scales, and with the bristly hairs across hind margins of tergites short, more feebly developed.
- 64. (a) Antennae on the whole closer together, space between them usually not more than a third or fourth distance between the eyes at same level; terminal joint of third antennal joints with a distinct circlet or pencil of fine hairs in addition to the style at its apex and with the third joints themselves usually much more rapidly broadened basally into a bulb- or onion-like or even discus-like base; face always rounded or only feebly convex, not subconically prominent or conically produced apically; metapleurae bare; wings usually with only two, rarely three, submarginal cells; alula and squamae fringed with hairs; front tibiae usually not much reduced, less modified and with well-developed spicules; pulvilli present; ovipositor in φφ with a tuft or brush of hairs.

65 (Anthracinae) (p. 356)

- (b) Antennae on the whole wider apart, space between them usually much more than a third or fourth of distance between the eyes at same level; terminal joint of third antennal joints (if discernible or obviously present) ending only in a style or stylet and without a circlet of fine hairs, and the third joints themselves usually more conical or at least less rapidly broadened bulb-like at base and, if bulb-like, a circlet of hairs not present; face more often subconically or conically prominent or produced and, if not, other characters do not differ; metapleurae with a distinct tuft or at least with some hairs; wings more often with three or sometimes even four submarginal cells, rarely with only two and in that case the other characters do not differ; alula and squamae fringed with scales or hair-like scales, rarely with hairs; front tibiae more reduced or modified and either without spicules or with these very much reduced or present only along lower part; pulvilli usually absent, rarely present; ovopositor in ♀♀ with a series (or a half-circlet) of spines or hooks on each side. 68 (Exoprosopinae) (p. 465)
- 65. (a) Body without or with much fewer stoutish bristles, the prealar and postalar ones comparatively feebly developed, without any stoutish bristles in mesopleural tuft or strong bristly hairs or bristles across hind margin of scutellum and across hind margins of tergites, all these, if present, being much feebler and shorter; sides of abdomen without conspicuous tufts of long, bristly hairs or long scales; hairs on frons and face much shorter and entirely pale, whitish or yellowish and those on rest of body above and below entirely or predominantly pale; pale scales on abdomen above not broad

- (b) Body with the bristly elements and stoutish bristles strongly developed, the prealar, postalar and scutellar bristles strong and conspicuous, with stoutish bristles in meso; pleural tuft and with longish and sometimes strong ones across hind margins of tergitessides of abdomen with conspicuous and dense tufts of long, bristly hairs or hairs and scales; hairs on head in front longer and usually mainly dark or black, those on frons black and those on rest of body above predominantly dark or black; scales on abdomen above in form of broadish, flattened, wedge-shaped, cuneiform or lanceolate, white ones arranged across hind margins of tergites, especially sides, and in 33 as very dense and conspicuous white or silvery ones on last two or three tergites; head scarcely or not broader than thorax; from or face not so turnidly prominent and the face always with a bare space discally below antennae; terminal joint of third antennal joints of variable length, usually conspicuous and always with a conspicuous crown of relatively longish hairs hiding the short style if present; scutellum usually more rounded posteriorly; spines and spicules on legs, especially spurs on tibiae, distinctly more strongly developed; wings usually with some infuscation in the form of spots on at least some of the cross veins or with the base and costal part infused to a variable extent, rarely entirely hyaline and rarely without a stump on either base of second vein or that of upper cubital branch. 67
- - (b) Head in front above antennae not tumidly prominent; face discally more convex or subtumid; frons in ♀♀ with a central groove-like depression basally; interocular space on vertex in ♂♂ broader, quite or nearly twice width of ocellar tubercle; small terminal joint of antennal joint 3 blunter and with a distinct crown of short, fine hairs; the bisecting line in eyes distinctly longer; body and abdomen broader, not elongate; legs stouter, with stronger spines and spicules; apical spurs of middle and hind tibiae distinctly stronger and longer; hair on head in front much longer, not entirely silvery, more yellowish, and the integument with only feeble or obscure silvery or brassy tomentum; plumula normally developed; prealar and postalar bristles stronger and longer; basal comb fine, but distinct; second vein with a feebler forward bend in apical part.

    \*\*Xeramoeba\* n. gen. (p. 356)\*
- 67. (a) Vestiture with the bristly elements less dense and scaling on body also less dense, the vestiture on sides of abdomen in form of dense, longish hairs, bristly hairs or bristles and those on sides of tergites 2-4 black or dark and, if pale, without any long, flattened, scale-like hairs; white scales posteriorly on abdomen, if present, more often gleaming pearly white or shining silvery white, especially in 33; antennae (text-fig. 133) with joint 2 lens-shaped, disc-shaped, barrel-shaped or subglobular, with the bulb-like or discoidal base of joint 3 not closely fitting ball and socket-like into concavity of 2, but

- (b) Vestiture with the bristly elements usually more dense and scaling much denser, the vestiture on sides of tergites 2-5 in form of bristly hairs and black and white tufts of long, flattened, lanceolate or strap-like scales or scale-like hairs, those on sides of 2 and 4 usually black; white scales posteriorly on abdomen duller, more cretaceous or chalky white; antennae (text-fig. 134) with joint 2 very much more flattened, saucershaped, bowl-shaped, very concave apically, usually slightly broader across its apical rim, with the bulb- or onion-shaped basal part of joint 3 fitting closely into it like a ball in a socket and with no visible peduncle-like part of joint 2 being apparent; claws in ♂♂ distinctly longer than in ♀♀. . . . Argyramoeba Schin. (p. 364)
- 68. (a) Hind margin of eyes without any distinct or visible indication of a bisecting line extending forwards from indentation; froms with a more distinct transverse or foveate depression at about middle, especially in φφ; occiput relatively short, the gap wider and the lobes more separated; pulvilli well developed; spicules in outer upper row on hind tibiae not markedly or conspicuously dense, much fewer; second vein in wings originating quite a little distance before middle cross vein, sometimes at a point quite the length of latter; alula and squamae fringed with hair-like scales or hairs; scaling on body entirely fine and hair-like, almost indistinguishable from depressed hairs.

Synthesia Bezz. (p. 466)

- (b) Hind margin of eyes with a distinctly discernible, even if short or obscure, bisecting line or an indication of one extending from indentation; frons without any depression or, if a slight one is indicated, it is longitudinal and not transverse; occiput relatively longer, its gap narrower, with the lobes almost touching or contiguous; pulvilli usually wanting, very rarely present; spicules in outer upper row on hind tibiae usually more numerous and markedly denser than the rest; second vein originating much nearer or opposite middle cross vein; alula and squamae usually with broader scale-like hairs or scales and, if fine and hair-like, other characters do not differ; scaling on body not entirely fine and hair-like, some being broadish and flattened.
- 69. (a) Third antennal joints distinctly more club-shaped, the broad base more bulb- or onion-shaped, more marked off from the slender part which ends only in a fine stylet and not in a two-jointed stylar part or in a terminal joint bearing a style; face not prominently projecting cone-like or snout-like, usually rounded or at most only roundly convex or slightly tumid; wings with only two submarginal cells, usually entirely or mainly hyaline, rarely with a pattern; front tibiae with some distinct spicules, even if only along lower surface; claws without a distinct basal tooth or at most with only a small and obtuse tubercle; ocellar tubercle tending to be situated more posteriorly, nearer to vertex.
  - (b) Third antennal joints more conical or in form of an elongated cone, tapering more gradually from broad base and ending apically in a terminal joint-like element bearing a fine stylet or in a two-jointed style of variable length, rarely without these; face distinctly more prominently projecting cone-like or snout-like or at least conspicuously prominent and, if not, proboscis projects beyond buccal cavity and third antennal joints are conical; wings more often with three submarginal cells or even four and more often infuscated, spotted to a variable extent or with an extensive pattern and, if with only two submarginal cells or entirely hyaline, face at least is conical or snout-like; front tibiae in most cases without distinct spicules, rarely spiculate; claws rarely without a distinct and sharp basal tooth; ocellar tubercle usually situated farther forward.
- 70. (a) Mouth parts normally developed, the buccal cavity, proboscis and palps not markedly reduced or vestigial; face shorter, much shorter than frons, not prominently and conspicuously roundly convex or tumid; eyes longer (broader) at level of antennae, less reniform and with a more distinct indication of a bisecting line; occiput relatively longer; anal cell more widely open, less narrowed apically; legs on the whole relatively longer; spines on middle and hind femora, especially latter, usually distinct or well developed; front tibiae with only a few small spicules, mostly on lower surface; front tarsi more modified and hairy; prealar, postalar and scutellar bristles and bristly

- (b) Mouth parts abnormally and much reduced or vestigial, the buccal cavity much reduced or even slit-like and proboscis and palps small, rudimentary or even wanting; face longer, as long as or only a little shorter than frons, prominently roundly convex or tumid and very broad; eyes more reniform, shorter at level of antennae and with a less distinct indication of a bisecting line; occiput relatively shorter or very short; anal cell tending to be more narrowed apically or even sometimes to be closed; legs distinctly shorter or markedly shortish; femora without distinct spines below or only with short, spine-like hairs; front tibiae with distinctly more numerous spicules over the upper and lateral surfaces; front tarsi less modified or at least not more hairy than the others; thoracic and scutellar bristles and bristly hairs on abdomen entirely absent or very short or poorly developed; scales on sides of abdomen not conspicuously developed and without longish feathery scales on hind tibiae; integument with more or much yellowish brownish, reddish or castaneous brownish and the black less developed or less conspicuous.
- 71. (a) Head smaller, narrower, distinctly or much narrower than across disc of thorax at level of wings; indentation in hind margin of eyes slightly deeper; antennal joint 3 with the broad base bulb- or onion-shaped, but relatively smaller, narrower or not much broader than joint 2, its slender part very slender, rod-like or styliform or even filiform and relatively much longer, much longer than length of bulbular base; mesopleuron, though prominent, tending to be less convexly bulging; third posterior cell in wings distinctly very much shorter, its base characteristically only a little way before middle of vein separating it from fourth posterior cell and usually with a short stump or a vestige of one projecting into discoidal cell from this base; second vein more recurved apically and with an indication of a stump basally; basal part of discoidal cell before the constriction much larger, only a little smaller and shorter than apical part; second submarginal and second and third posterior cells shorter; legs on the whole distinctly longer, more slender; front and middle femora with only sparse fine hairs on lower hinder part and hind ones with some short spines or spine-like hairs below; front tibiae with fewer spicules; tarsi distinctly or much shorter than tibiae, the basal joint of front ones not markedly thickened; scaling on pleurae and coxae, especially front ones, broader, more flattened, not finely hair-like; hairs on tergites I and 2 and basal part of venter and also on front coxae less dense, sparser and shorter. Oestranthrax Bezz. (p. 509)
  - (b) Head distinctly much larger, broader, nearly or quite as broad as (or even slightly broader than) disc of thorax at level of wings; indentation in hind margin of eyes shallower, scarcely distinct; antennal joint 3 with the broad base larger, more ovate or ham-shaped and considerably broader than joint 2, more gradually narrowed, its more slender apical part much stouter and thicker, subequal in length to or only slightly longer than broad base; mesopleuron tending to be more convexly bulging; third posterior cell distinctly much longer, its base very much nearer apex of second basal cell and more often without a stump; second vein less recurved apically and without a stump at base; basal part of discoidal cell before constriction distinctly very much smaller and shorter than broad apical part; second submarginal and second and third, and even fourth, posterior cells usually distinctly longer; legs distinctly shorter and stouter; front and middle femora with long or longer, dense and shaggy hairs on lower and hinder parts and all the femora without any spines; front tibiae with denser spicules; tarsi, especially front and middle ones, about as long as or scarcely shorter than tibiae, the basal joint of front ones distinctly thickened; scaling on pleurae and coxae fine, hair-like; hairs on tergites 1 and 2 and base of venter and also on front coxae distinctly very much denser and longer or very much longer.
- 72. (a) Mouth parts very much and abnormally reduced, the buccal cavity only represented by a longitudinal slit and the proboscis and palps entirely absent or a mere vestige of the former protrudes through the slit in form of a minute, scale-like process; antennal

joint 1 much shorter, less thickened, with shorter and less dense hairs; hairs on face and body above and below distinctly shorter and less shaggy, those on pleurae, tergites 1 and 2, sides of abdomen, venter (especially base) and on front and middle femora not conspicuously long and shaggy; sides of abdomen and greater part of venter with only shortish, sparse hairs and dense scales; base of tergite 2 (sides only in 33 and rest of tergite in  $\varphi\varphi$ ) with a broadish band of pale or white scaling in addition to hairs; mesopleuron slightly less convexly boss-like; posterior more membranous part of squamae about or only a little shorter than the more leathery and opaque basal part or half; wings in known species with a broad band-like infuscation of variable extent across middle either in both sexes or only in  $\varphi\varphi$ , the 33 in latter case having only costal part infuscated; basal hook of wings shorter, more triangular, more broadened at base.

Villoestrus Par. (p. 517)

- (b) Mouth parts, though much reduced, still present and even slightly less reduced than in Oestranthrax, the buccal cavity broadly visible, not slit-like, the proboscis more distinct, subequal in length to antennal joint 3, having a distinct, pointed, labellar part, and palps distinctly discernible; antennal joint I distinctly longer and thickened, with distinctly longer and denser hairs; hairs and scales on face much longer and denser, and hairs on body above and below distinctly much longer, denser and more bushy or shaggy, those on pleurae, tergites 1 and 2, sides of abdomen, base of venter and on front and middle femora longer, denser and more shaggy; sides of abdomen and venter with much denser and longer hairs in addition to the scales; base of tergite 2 without conspicuous whitish scaling, such being present across bases of other tergites; mesopleuron slightly more convexly bulging; posterior more membranous part of squamae distinctly very much shorter than more leathery basal part; wings in genotype-species more hyaline, without band-like infuscation across middle, even in 33; basal hook much longer, narrower, more prong-like. Marleyimyia n. gen. (p. 521) .
- 73. (a) Claws without a basal hook or at most with a small and obtuse tubercle; wings usually with only two submarginal cells and, if rarely with three, claws are without a basal hook; antennal joint 3 with the broad base more often tending to be more rapidly marked off or more bulging or dilated below at least, the joint thus less gradually tapering and not in form of an elongated cone, ending apically in either a two-jointed style (terminal joint and style) or sometimes in only a stylet, the basal or terminal joint in case of former being usually very much shorter than slender part of joint itself and, if very much longer as in a few forms, other characters conform.

Thyridanthrax Ost. Sack. (p. 524)

- (b) Claws usually with a distinct, well-developed, basal tooth; wings always with three or sometimes even with four submarginal cells; antennal joint 3 in form of an elongated cone, ending apically either in a well-marked-off two-jointed style (terminal joint and style), the basal or first one of which is sometimes very long, or joint ends in a distinct and separately discernible style or stylet and, if not, claws at least have a basal tooth.
- 74. (a) Anterior tarsi always distinctly more or less modified in both sexes, either finely or densely hairy or sometimes even with dense, spine-like hairs; anterior claws more usually much reduced, considerably smaller than rest, rarely not reduced; basal tooth of claws more developed, stouter, blunt or sharp; middle and hind femora rarely without well-developed spines and, if without, other characters do not differ; spicules and spurs on at least middle and hind tibiae well developed, long and often dense; face more often conical or sharply conical, only occasionally more roundly convex; genal furrows less distinct and less deep; occiput relatively shorter, usually less sloping and usually foveately or more distinctly depressed anteriorly behind vertex; thorax relatively shorter relative to scutellum and rarely without distinct, long and well-developed bristles; head and body not entirely or predominantly reddish and, if mainly so, other characters do not differ.
  - (b) Anterior tarsi not distinctly modified, not densely hairy; anterior claws not markedly reduced, scarcely much smaller than rest; basal tooth of claws very small, in form of a short spine; middle and hind femora with the spines much reduced, very short; face broad, subtumidly rounded and not sharply conical or merely rounded; genal furrows well developed, very distinct and deep; occiput relatively longer, more sloping,

- 75. (a) Face conical or more rounded, but even if conical, not distinctly longitudinally depressed or grooved above; palps long, at least as long as or longer than antennae; thorax longer, much more or very much more than twice length of scutellum; wings not or rarely pedunculate; alula and axillary lobe not markedly narrow and reduced; second vein originating at right angles very near or opposite middle cross vein; alula and squamae with a fringe of distinct scales; basal comb more strongly developed; front tibiae without longer, slender, apical spicules or spurs on inner or anterior part.
  - (b) Face very conical, distinctly grooved or sulcate above; palps short, shorter than antennae; thorax relatively shorter, only a very little longer than twice length of scutellum; wings distinctly pedunculate; alula and axillary lobe markedly narrow and reduced; second vein originating more obtusely some distance before middle cross vein; alula and squamae with a fringe of hair-like scales or hairs; basal comb more reduced; front tibiae with a few long and slender apical spurs on inner anterior part.
    Isotamia Bezz. (=Francoisia Hesse = Ogilviella Par.) (p. 931)
- 76. (a) Wings with a very characteristic pattern, consisting of two broad cross bands of yellowish brown, reddish brown or blackish brown which are broadly confluent anteriorly in costal part anterior to discoidal cell, leaving the apical part and an irregularly triangular indentation in middle of hinder half or hinder part clear or hyaline; proboscis long, always longer than buccal cavity, often very much longer than head; face distinctly less conically produced, more roundly convex or subtumid; front tibiae distinctly spiculate, with more spicules which are usually well developed in at least three rows on upper and outer lateral faces apart from fine brush on inner lower part; modified front tarsi with longer, stouter and often denser spine-like hairs; claws with the front ones comparatively less reduced, and basal tooth of all relatively stouter, more compressed; abdomen with a more constant, rounded, or quadrate patch of snow-white or cretaceous white scales on sides of tergite 3 or with a white band across hind margin and also with white scales on last two tergites.
  - Litorrhynchus Macq. (p. 621)

    (b) Above combination of characters not all present; wings with different and various patterns or even hyaline and, if with a more or less similar pattern, following characters do not differ; proboscis much shorter, not or scarcely or only a little projecting beyond apex of buccal cavity, rarely longish; face distinctly more sharply conically produced or pointed apically; front tibiae more often non-spiculate and, if with spicules, these are much fewer and usually only on outer part or in fewer rows, only occasionally with numerous spicules; modified front tarsi usually with finer, shorter and less spine-like hairs; front claws usually much or more reduced and basal tooth of all relatively more slender, sharper and more spine-like, rarely stout and compressed; abdomen with different patterns of white or pale scaling, either with transverse bands on most of the tergites or without bands, or with bands differently arranged and, if with a similar pattern, all other characters do not differ.
- - (b) Wings with four submarginal cells, formed either by the branches of cubital fork being united by a cross vein, or by the anterior apical cell (formed by submarginal cross vein dividing first submarginal cell into two) being divided into two by an oblique cross vein (or a cross vein more or less in line with long axis of wings).
- 78. (a) The four submarginal cells formed by the branches of cubital fork being united by a cross vein which extends from very near apex of first posterior cell to angular dip or backward bend of first apical cell; apex of marginal cell not truncated or second vein not sharply bent at right angles at its apex (the marginal cell not appearing as if divided into two by a cross vein); wings usually not maculated or with confluent spots.

  Ligyra Newm. (=Hyperalonia Rond. olim) (p. 913)
  - (b) The four submarginal cells differently formed (pl. ii, fig. 12), formed by a very oblique cross vein (or a cross vein in line with long axis of wings) dividing the first apical cell

into two, giving the appearance as if a long marginal cell has been divided into two by a cross vein; apex of true marginal cell truncate, due to the apical part of second vein being very sharply bent at right angles; wings extensively maculated and with confluent spots.

. Heteralonia Rond. (subgen. of Exoprosopa Macq.) (p. 908)

#### DIVISION II

Bombyliidae with the occipital region behind eyes distinctly bilobate, with a distinct deep and often long, central, slit-like channel or sulcation, often beginning in a foveate depression, leading into a deep and conspicuous concavity in head behind; hind margin of eyes in most genera and species distinctly indented or subangularly or angularly emarginate, more often also with a faint or distinct, abbreviated, bisecting line extending forwards from indentation; common base of second and third main veins in wings usually long; second vein more often originating at right angles or very nearly so from third vein.

#### Subfam. CYLLENIINAE

As this subfamily, even in the Palaearctic Region, is composed of very dissimilar elements, it is very difficult to define the subfamily on the characters present in such genera as Henica, Nomalonia, and Peringueyimyia, which have been referred to this subfamily by Bezzi. Judging from descriptions of Cyllenia Latr. s. str. given by Engel (p. 10, Die Fliegen d. Pal. Reg., lief. 65 (Bombyliidae), 1932), there is no doubt that the above-named African genera differ in important characters from the Palaearctic representative of the subfamily. Especially is this the case in Henica and Nomalonia. From Cyllenia they differ in not having the interocular space broad in both sexes, in having very short first antennal joints, and third joints which are obliquely truncated or slightly excavated apically, in having the second longitudinal vein originating very far from base of third, in having characteristically fenestrated wings, and the marginal cell sometimes divided into apartments by cross veins, in having tergite 2 long and transversely depressed across base, very conspicuously visible hypopygium in 33, scaled halteres, and characteristically modified tarsal joints 3-5 in 33. The solitary genus Peringueyimyia on the other hand has the eyes in 33 contiguous or subcontiguous for a distance above, a more developed occipital region, and an apically acute and stalked first posterior cell in wings. Not having seen and compared Palaearctic genera of Cylleniinae with these African genera, it is impossible to state whether they should be included in the subfamily, and though all three are provisionally retained in the Cylleninae, there is a suspicion that Henica and Nomalonia at least belong to a separate group.

## Gen. Henica Macq.

(Macquart, p. 399, Suit. à Buffon, i, 1834; Macquart, p. 78, Dipt. Exot., ii, 1840; Becker, p. 477, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, p. 109, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 135, The Bombyliidae of the Ethiopian Region, 1924.)

(Syn. = Lagochilus Loew, p. 201, Dipt. Faun. Südafr., i, 1860.) (Syn. = Alonipola Rondani, p. 71, Archiv. Zool. Canestr., iii, 1863.)

The chief characters of this genus are: Body muscoid in appearance. Vestiture in form of relatively sparse bristly hairs and bristles and much denser

adpressed scaling, especially on body above and on legs, with the greater part of pleurae, genae and sides of front part of head bare; bristly hairs present on ocellar tubercle, frons, sparsely on antennal joints 1 and 2 above, sparsely on sides of face, more densely on upper parts of occiput and more finely on head behind eyes; those on front part of thorax and on humeral angles denser and longer than very sparse and short ones on disc; those on upper part of mesopleuron dense and brush-like; bristles on sides of thorax in front of wing-bases stoutish and conspicuous; postalar and sparse bristles across base of thorax and also scutellar ones also well developed and stout; tuft at base of abdomen on each side fairly dense, conspicuous; bristles across hind margins of tergite and sternite 7 much longer and more conspicuous than short ones on sides of abdomen; bristly hairs on sternite 1 also long; bristles on coxae well developed; scaling dense on frons and in stripes on thorax above; that on abdomen very dense and with the whitish, greyish, yellowish or brownish and dark ones arranged in a pattern, the whitish ones being concentrated spot-like or densely across hind margins and sides of tergites, as spots along middle above and also across hind margins of sternites or along middle of venter; scaling on pleurae sparse, dense on mesopleuron and on legs. Head broad, quite as broad as, or even slightly broader than, thorax; occiput comparatively short behind ocellar tubercle and behind eyes, broadly bilobate, the sulcus broad and gap-like; ocellar tubercle raised and well marked off, especially in 33; interocular space in 33 above much narrower than in 99, in 33 about as broad as ocellar tubercle, but narrower than tubercle just before tubercle; space in QQ about  $2\frac{1}{2}$  to 3, or nearly 3, times width of tubercle; frons thus more gradually diverging anteriorly in QQ, gradually and arcuately convex in profile in both sexes; buccal cavity prominent, projecting, its rims prominent and the cavity deep, separated from inner margins of eyes on each side by a deep cavity, prolonged lower down into a groove; face above buccal cavity very short and insignificant, separated from lower front part of frons on each side by a shallow, groove-like depression; antennae inserted in a slight depression, the first joints narrowly separated at their bases, very short, scarcely, or only very slightly, longer than joint 2, but broader than 2, with joint 3 elongate, somewhat laterally compressed, broadest towards base, more straight along upper margin, with the apical half or apical third more slender, the apex obliquely truncate on inner side or with a slight excavation, bearing a stylar element, the upper surface of joint 3 usually covered with some scales and a few, inconspicuous, short, bristly hairs at about, or beyond, middle; proboscis straight, tending to be directed obliquely upwards, the labial part dull, due to a finely strigilose sculpture, with sparse and scattered spinules sometimes visible; palps slender, not visibly divided into joints, the apical part, however, broader and more clavate and the sparse hairs along upper apical aspect longer. Thorax with the base markedly arcuately emarginate and the demarcation between it and scutellum depressed. Wings with the front half at least or even the greater part infuscated, but showing

a fenestrated appearance, due to clear or subopaquely whitish spots on cross veins and at base of cells; basal comb poorly developed; alula narrow, not lobate; axillary lobe also narrow, parallel-sided, not lobate; three submarginal cells present; marginal cell divided into three by two cross veins; second longitudinal vein originating more or less at right angles far from base of third longitudinal vein; four posterior cells present and all open on hind border; middle cross vein very much beyond middle of discoidal cell, the apex of latter broadish and truncate; basal part of first longitudinal vein also scaled above like costal vein; costal cell very long; halteres spatulate, with fairly dense scales on each side, especially above. Abdomen with tergite 2 long, transversely depressed across the base; the last sternite somewhat elongate in 33. Legs with the bristles on coxae and spicules on tibiae well developed, with at least two rows of bristly spines on femora below, longer and more numerous on hind ones; tarsi with joints 3-5 on all the legs in 33 modified, joint 3 having a pad-like brush of very fine hairs and 4 and 5 appearing more excavated below, but also with pads of fine hairs, and without a conspicuous bristle on each side apically below as on 3; claws only gradually curved, more slender and comparatively longer in QQ, with the pulvilli short and confined to bases of claws, more pad-like in 33 and the medial empodium also stouter and thicker in 33. Hypopygium of 3 (text-fig. 1) with the basal parts elongate, not separated into two parts by a dorsal suture, the line of suture being indicated only by a slight longitudinal depression towards apical part, with only very short and scattered fine hairs above and very fine pruinescence, but no long, bristly hairs; beaked apical joints as shown in text-figure, with the apical part more or less flattened and bifid, with a transverse, raised, keel-like ridge above, behind which the dorsum is covered with dense bristly hairs; aedeagus with the slender apical part curved upwards, then broad and tubular for some distance and then appearing very broad and really constituting part of the ventral inner part of basal part, the actual tube of the aedeagus being visible along its centre; middle part of aedeagal complex prominent, inflated, helmet-like and, together with basal part of aedeagus, connected on each side by means of ramus to basal part and also to last sternite, with the ramus on each side continued on inner side of the basally directed projection of basal part as a narrow, strap-like process; lateral struts shortish.

This genus and the following one are peculiar in having tarsal joints 3–5 in the 33 characteristically modified and in having tergite 2 transversely depressed basally in both sexes. In the relatively short occiput which is broadly bilobate, the sulcus being short and gap-like, they also differ from the other genera in the second Division. The non-emarginate and non-bisected eyes also tend to affiliate them with genera in the first Division, but the bilobate occiput and long base of third longitudinal vein are of sufficient importance to place them in the second Division. At present *Henica* s. str. is represented by only one known species which appears to be confined to Southern Africa.

### Henica longirostris (Wied.)

- (Wiedemann, p. 281, Aussereurop. Zweifl. Ins., i, 1828 (as Anthrax); Bezzi, p. 109, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 135, The Bombyliidae of the Ethiopian Region, 1924.)
- (Syn. = afra Wiedemann, p. 358, Aussereurop. Zweifl. Ins., i, pl. v, fig. 2, 1828 (as Cyllenia).)
- (Syn. = pluricellata Macquart, p. 84, Dipt. Exot., Suppl. v, tab. 4, fig. 12, 1855 (as Cyllenia); Rondani, p. 71, Archiv. Zool. Canestr., iii, 1863 (as Alonipola).)
- (Syn. = afer (Wied.) by Loew, p. 201, Dipt. Faun. Südafr., i, 1860 (as Lagochilus).)

As is evident from the references cited above, this species was referred to more than one genus and was also described under different names. The somewhat confused synonymy was cleared up by Bezzi in 1921. What precipitated this confusion was the fact that Wiedemann described two specifically distinct species, belonging to different genera, one as Anthrax longirostris (p. 281, loc. cit.) and the other as Cyllenia longirostris (p. 358, loc. cit.), and immediately after the latter described another species Cyllenia afra (p. 358, loc. cit.), which latter species is without doubt synonymical with Anthrax longirostris, but generically and specifically different from his Cyllenia longirostris. This last species is most certainly not a Cyllenia and according to Bezzi is to be referred to Adelidea anomala Wied. as a synonym. Macquart in 1840 and 1855 was the first to fall into the trap by redescribing Anthrax longitostris Wied. (=Cyllenia afra Wied.) as Cyllenia pluricellata (p. 84, loc. cit.) and by describing a new species of a very similar genus (Nomalonia) as Cyllenia afra Wied. (p. 108, Dipt. Exot., ii, 1840). Loew on the other hand accepted Wiedemann's Cyllenia afra as valid, but recognizing that generically it was not a Cyllenia created his new genus Lagochilus for it. Similarly Rondani in 1863 accepted Macquart's pluricellata as a valid species, but referred it to a new genus Alonipola. Macquart, however, as early as 1834 (p. 399, Suit. à Buffon, i), realizing that Anthrax longirostris Wied. was not an Anthrax, erected a new genus Enica (now written Henica) to accommodate it.

The characters of this interesting species are:

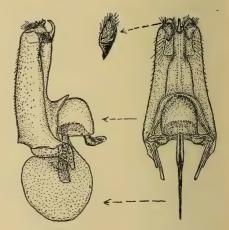
Body for the greater part dark or black above; sides of head behind eyes, sides of frons, the entire facial region and buccal cavity and head below ivory whitish, ivory yellowish to straw-coloured yellowish; posterior cavity of head yellowish brownish to orange yellowish, with a variable black spot or blackish infusion on each side of occiput; ocellar tubercle also black or blackish; basal half or greater part of middle of frons, especially in  $\mathfrak P$ , reddish brownish or even dark brownish, becoming paler anteriorly; eyes very dark brown to blackish brown; proboscis black; antennal joint 1 yellowish, joint 2 sometimes darker or also yellowish and the entire joint 3 dark or blackish, the extreme base, however, sometimes yellowish; sides of thorax in front of wings, sometimes broadly, postalar calli, base of thorax on each side, greater discal part of scutellum,

entire sides of tergite 1, fairly broad hind margins of the rest of the tergites, broader on sides and towards apex of abdomen, especially tergite 7 in 3, broad hind margins of the sternites and almost or the entire last sternite, hypopygium of 3 and the entire or greater part of pleurae in both sexes reddish yellow, vellowish brown to almost ochreous yellowish or reddish, the latter colour especially on the pleurae; coxae, greater part of femora below, greater part of the tibiae below and integumentary colour of the tarsi also yellowish, yellowish brownish to even ochreous brownish in both sexes, the upper surfaces of the femora, especially front and middle ones and apical parts above of hind ones, the upper or outer surfaces of the tibiae and often even the entire hind tibiae and the tarsi darkened or appearing dark or blackish, due to dark or blackish gleaming scales; spines, spurs and spicules on legs black, with the rest of the scaling on legs greyish whitish to dull gleaming whitish. Vestiture with the fine, erect, bristly hairs in cavity of head behind and on head behind eyes whitish or pale sericeous yellowish, those on dark occipital spots dark or blackish; those on ocellar tubercle and greater part of frons, especially in 3, also black, the bristly hairs towards front part of frons becoming paler or with intermixed vellowish ones; sparse, shortish hairs on antennal joints 1 and 2 above black, the sparse tust of hairs on sides of face, those in fossa on each side and the more or less sparse hair on head below whitish or pale sericeous or straw-coloured yellowish; the fairly dense scaling on frons, denser, longer and more conspicuous in 3, whitish or very pale creamy yellowish; bristly hairs, bristles and macrochaetal bristles on thorax, scutellum and abdomen black, the finer and denser ones on sides of tergite 1 and on sternite 1 basally whitish; brush-like bristles along upper part of mesopleuron black and the tuft just above front coxae whitish or straw-coloured; dense scaling on thorax above arranged in more or less 2 submedial longitudinal stripes of white ones, with a broader stripe on each side of the same scaling or often more greyish scaling, all 4 stripes separated by broader bands of more yellowish brown, ochreous or brownish tinted scales; those basally on scutellum whitish or very faintly tinted creamy to slight ochreous; scaling on abdomen very dense, more or less arranged in a pattern of cretaceous or chalky white scaling, more evident and conspicuous as spots or patches above along middle line and submedially on each side basally on each tergite and across hind margins of tergites, especially on sides of abdomen; scaling on sides of tergite I dense and white, with much ochreous yellowish, orange yellowish or yellowish-tinted scales on sides basally and across tergite 2 and transversely across medial parts of the other tergites (not occupied by white ones) where this admixture is, however, sometimes less evident owing to the contrasting spots and apical transverse bands of white scaling; distinct dark brownish or dark graphite-like scales on the sides of the tergites where the white ones are absent and also irregularly and in patches discally on abdomen above where pale ones are absent; scaling on venter white, greyish whitish to faintly yellowish-tinted, that along sides and along centre and often across hind margins of sternites more contrastingly whitish; scaling on pleurae very sparse

and white or whitish like those on coxae. Wings smoky or tinged smoky brownish to a variable extent, apparently slightly darker in Q, with the costal cell beyond cross vein, the basal parts of first and second basal cells, a small spot at base of third longitudinal vein, an elongate oblique band (consisting of 3 coalescent spots) across middle of wing from apical cross vein of second basal cell to rounded spot on origin of second longitudinal vein and six other rounded spots on the cross veins and bases of posterior cells respectively conspicuously subopaquely whitish or glassy, with the first, third and fifth longitudinal veins and greater part of the cross veins in the clear spots yellowish, the rest of the venation very dark blackish brown to almost black; base of second longitudinal vein, which arises at almost right angles, sometimes with a distinct appendix; scaling at base of costal vein whitish then blackish; squamae milky whitish; halteres with the apical part of broadened apical part whitish, the rest of knob yellowish, with the scaling on sides of stem gleaming dark blackish brown, becoming finer and more whitish at base. Head with the eyes in 3 above separated by width of ocellar tubercle and at narrowest part a little broader than front ocellus or quite as broad as narrow front part of tubercle; interocular space in Q on vertex about  $2\frac{1}{2}$  to nearly or even about 3 times as broad as the tubercle; antennae with joint I subequal in length or a little longer than 2, with 3 apparently more slender in 3; proboscis about 3-4 mm. long including the sheathed base. Hypopygium of 3 (text-fig. 1) as described for genus. In the British, Transvaal and South African Museums and in the Commonwealth Institute.

Length of body: about  $4\frac{1}{2}-11$  mm. Length of wing: about  $4\frac{1}{2}-9\frac{1}{2}$  mm. Locality: South-western and southern Cape, west Cape Province, Little Karoo, southern boundary of Great Karoo and Namaqualand.

This species appears to be variable in size, the extent of the yellowish on body and the extent and intensity of the infuscation in the wings. Specimens coming from the extreme southern parts along the coastal belt and within the mountainous area of the Western Province distinctly differ from those from the Olifants River Valley, western Cape, the southern boundary of the Karoo and Nama-



Text-fig. 1. Parts of hypopygium of 3 of Henica longirostris Wied.

qualand in having almost the entire wings infuscated or tinged smoky, even the hinder parts in 3 also distinctly tinged and the wings in 9 even slightly darker, the reddish on sides of thorax in both sexes apparently broader and more extensive and in having most of the scaling on abdomen above, apart from the

white spots and transverse bands, darker, more black and gleaming like anthracite. The Namaqualand specimens and those from the west Cape and southern boundary of the Karoo on the other hand have the wings less deeply infuscated, the discoidal and posterior cells of wings in  $\beta$  entirely glassy hyaline or at least tinged very much less and even in  $\beta$  tending to be less tinged, the reddish on sides of thorax apparently narrower and less conspicuous, and more pale, greyish, yellowish, or even ochreous yellowish scales between the white ones on abdomen above.

#### Gen. Nomalonia Rond.

(Rondani, p. 71, Archiv. Zool. Canestr., iii, 1863; Bezzi, p. 106, Ann. S. Afr. Mus., xviii, 1921.)

This genus, which was described by Rondani to contain Cyllenia afra Macq. (nec Wiedemann), is structurally almost inseparable from Henica, practically differing only in having no cross veins dividing the marginal cell into three apartments as in Henica. In most other respects, such as a bare and smoothish facial region, short first and second antennal joints, similarly fenestrated wings and other wing-characters, a basally transversely depressed second tergite, modified tarsal joints 3-5 in 33, gradually curved claws and much reduced pulvilli and even very similar hypopygium, this genus agrees with Henica. Another detail which is more usual in species of *Nomalonia* is the entire or almost entire absence of a distinct tuft of bristly hairs on each side of face and buccal cavity. The absence or presence of cross veins in the marginal cell is often such an unstable character that it may hardly be considered as of generic value and, if no great importance be given to these cross veins, Nomalonia may quite reasonably be considered as only a subgenus of Henica. The PP of some species of Nomalonia even resemble Henica longirostris to such an extent that they practically differ only in the absence of cross veins in the marginal cell and may thus be easily mistaken for the latter species. All the species of Nomalonia, described in this paper, have the following characters in common: Body with the facial region, sides of frons and head behind eyes ivory whitish, ivory yellowish or bone-yellowish; sides of thorax, base of thorax and postalar calli, entire or greater part of scutellum, entire or greater part of pleurae, broadish or very broad hind margins of tergites and sternites, entire sides of tergite 1 and greater part of legs yellowish reddish, yellowish brownish to reddish brown. Vestiture with the bristles and bristly hairs on body above similarly disposed in all the species as in Henica; dense scaling on abdomen above in form of a row of central white patches or spots and white transverse bands, more conspicuous on sides of tergites, and usually broken up into patches discally across the medial tergites, with brownish or blackish scaling also intermixed above and with dark or blackish scaling to a variable extent on legs above. Wings tinged brownish, more so in QQ, rarely hyaline in some 33, and with clearer fenestrae similar to those of Henica. Legs with the tarsi modified in 33 as in those of Henica.

Hypopygium of the 33 (text-figs. 2-6) is also very similar to that of Henica in some respects; basal parts also fused dorsally, elongate, ending basally on each side in a lobe-like prolongation; beaked apical joints (see figures) excavated or hollowed on the sides towards the lower aspect, the inner excavation often produced apically into a tooth-like or prong-like lobe (to left of fig. 3) which gives the joints a bifid appearance from above, dorsally these joints are covered with shortish, sometimes spine-like, bristles; apical joints usually also end in a sharp point, but they may be blunt and, when viewed from above, their shapes are variable (cf. text-figs.); aedeagus tubular as in Henica and also constitutes part of ventral aspect of basal parts, being fused ventrally with the basal part; middle part of aedeagal complex helmet-shaped and intimately connected with the last sternite by membranous or chitinous connections (text-figs. 3 and 5, Me.); lateral struts usually broadish, ladle-shaped, ovoid or tongue-shaped; basal strut racket-shaped or chopper-shaped. The unique species (afra) of Macquart was the only species with which previous authors were acquainted. In this revision five new species are described and the six known species may be separated by the characters given in the following key:

- - (b) Antennal joint 3 distinctly more club-shaped, its broad base almost bulb-shaped and apical two-thirds slender, rod-like (cf. text-fig. 6, a); bristly hairs on front half and even disc of thorax with numerous intermixed yellowish to reddish yellow ones; sides of face and buccal cavity with distinctly more numerous bristly hairs and these sericeous yellowish, without any dark ones; scaling on body more uniformly pale, dull ochreous yellowish to creamy yellowish, especially on abdomen where white scaling is almost confined to tergite 1 and to a central white patch on 2 and to a lesser extent across hind margins of others; scales on halteres gleaming creamy yellowish; femora and tibiae with less extensive and fewer dark scales, the integument of legs also less darkened above; wings in 3 predominantly hyaline.
- 2. (a) Wings with the subopaquely whitish fenestrae obliquely across middle equally broad, confluent, continuous in a straight line, forming a conspicuous broadish oblique fascia; first main vein slightly more curved up at end, not passing straight into margin; second vein originating at a point very much nearer level of base of discoidal cell; two submarginal cells not more darkly infused in middle; bristles and bristly hairs in front of prealar bristles, the coxal bristles and spines and spicules on legs shorter; bristly hairs on sides of abdomen distinctly much shorter, poorly developed, those across hind margin of terminal segments also relatively shorter and those on venter poorly developed, almost absent and very much shorter; white scales on abdomen above, apart from large, spotlike patches centrally on tergites 2 and 6 (or 7) arranged more transversely in conspicuous bands, the discal parts of which are broken up into small spots, especially across tergites 2-4; antennal joint 3 for the greater part yellowish, reddish yellow to reddish brown, rarely dark, only its apical part and the scaling dark, only its apical third or fourth narrow and slender, its basal two-thirds or three-quarters comparatively broader and more laterally compressed. 3 ♀ afra (Macq.) (p. 36)

- (b) Wings with the whitish fenestrae obliquely across middle not equally broad, more broken up into two separate spots, not forming a broadish, continuous fascia in a straight line; first vein straighter at end, passing straight into margin; second vein originating at a point much farther away from level of base of discoidal cell; two submarginal cells usually with a darker medial infusion; bristles and bristly hairs on notopleural part, coxal bristles and spines and spicules on legs usually longer; bristly hairs on sides of abdomen usually distinctly longer, denser and more developed, those posteriorly also longer and those on venter more developed, much longer and more conspicuous and, if short or poorly developed, wing-characters do not differ; white scaling on abdomen usually arranged in a central row of conspicuous spots in addition to transverse bands especially in 33; antennal joint 3 entirely black, either gradually tapering, almost sub-rod-like or the broadened base passes gradually into a longer, slender apical part and the base not or less compressed.
- 3. (a) Bristly hairs on sides of abdomen very much shorter, poorly developed and those posteriorly also relatively shorter; hairs on venter distinctly much shorter, sparser or almost wanting; bristles and bristly hairs on notopleural part, coxal bristles and spines and spicules on legs distinctly less strongly developed, relatively shorter; hairs across hinder part of collar (or thorax anteriorly) much shorter, sparser and mainly pale or whitish; red or reddish on sides of thorax, on postalar calli, sides of tergite 1 and on sides of other tergites distinctly less extensive, tergite 1 being almost black, only its narrowish hind margin reddish and reddish hind margins of rest of tergites much narrower; two submarginal cells not or scarcely darkened in middle; discoidal cell on the whole shorter and broader; scaling on abdomen above without any or fewer black ones, the snowwhite ones arranged in narrowish bands across hind margins of tergites 1, 2, 4 and sides of 3, 5, 6 and 7, those across 2 and 4 broken up into spots; white scaling on venter on the whole denser.
  - (b) Bristly hairs on sides of abdomen distinctly more strongly developed, longer, denser and more conspicuous and those posteriorly also longer; hairs on venter distinctly more developed, longer and more evident; bristles and hairs on notopleural part, on coxae and spines and spicules on legs distinctly more strongly developed and longer; hairs across anterior part of thorax longer, denser and mainly dark or black or with more numerous dark ones; red on sides of thorax, postalar calli, base of thorax, on entire sides of tergite 1, on sides of abdomen and across hind margins of tergites distinctly more extensive; two submarginal cells usually distinctly infused in middle; discoidal cell on the whole usually longer and narrower; scaling on abdomen above with more dark or black ones in addition to pale and white ones, the pale ones across hind margins either greyish whitish or greyish yellowish or white on all tergites even if broken up or there are more white ones in patches along middle and, if similarly arranged, the bands are broader and the individual scales are broader and slightly longer; white scales on venter usually slightly less dense and if dense longish hairs are also present.
- 4. (a) Antennal joint 3 shorter, less slender, not sub-rod-like, gradually or rapidly tapering from a much broader base; lower part of head not or less darkened, not tending to be blackish; darker basal part of frons without a conspicuous and very dark or black transverse fascia in ♀♀; red on sides of thorax, especially above wings, more conspicuous and more extensive; scutellum entirely yellowish reddish or brownish; red on abdomen distinctly more extensive, more conspicuous; legs distinctly more reddish yellow or reddish brown, with more conspicuous and more extensive whitish scaling, especially below
- 5. (a) Wings in both sexes less darkly tinged, the hinder part in ♀ less tinged and front part not very dark or brownish and the greater part in ♂, excepting only the smoky patches in

(b) Wings more darkly infuscated even in ♂ and hinder part in ♀ distinctly more darkly tinged, the darker part even more blackish brown or dark brownish and front part in ♂ with more conspicuous and slightly more extensive infusions; dark or blackish spot on each side of occiput smaller, more indistinct or even absent; reddish on sides of thorax broader, more conspicuous; greater part of abdomen more conspicuously reddish; fine bristly hairs on head behind more sericeous yellowish, with some or numerous distinct black bristles across hind margin of tergite 1 on sides; scaling on occiput sparser tinted more yellowish, that on frons less dense and more creamy yellowish; pale scaling on thorax and scutellum, especially discally, more greyish yellowish or creamy; abdomen above with more black scales; white scaling on femora less conspicuous.

♂ ♀ henicoides n. sp. (p. 40)

### Nomalonia afra (Macq.)

(Macquart, p. 108, Dipt. Exot., ii, tab. 9, fig. 4, 1840; Bezzi, p. 107, Ann. S. Afr. Mus., xviii, 1921.)

This species, which Macquart mistook for *Henica longirostris* (Wied.) (=Cyllenia afra Wied.), was fully redescribed by Bezzi in 1921. It is chiefly characterized and distinguished from the other species of *Nomalonia* described in this paper by the following characters:

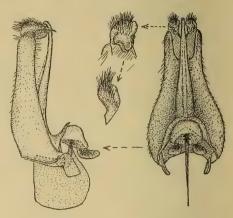
Body for the greater part dark or blackish above; greater part and sides of frons, facial region, head below and sides behind eyes ivory whitish, ivory yellowish to bony yellowish; concavity on head behind usually orange yellowish, but with a variable dark or blackish spot on each side of occiput; medial part of frons in Q, especially the basal half, orange yellowish, brownish to even dark brownish and the medial basal part of frons in 3 usually also infused with dark; ocellar tubercle blackish; antennae almost entirely yellowish, joints 2 and 3 reddish yellowish, only the apical part or apex of 3 darkened; proboscis black; a broadish band on each side of the thorax, sometimes an abbreviated central band or spot anteriorly, postalar calli, hind margin of base of thorax, scutellum, sides of tergite 1, hind margins of the other tergites, more broadly on sides and towards apex, greater part of broad hind margins of sternites and entire or greater part of pleurae reddish brownish, reddish yellowish to muddy yellowish; legs for the greater part brownish or yellowish brownish, the upper surfaces of the femora and tibiae dark to blackish, but apparently more so on account of the dark or blackish scaling. Vestiture as in Henica longirostris, in form of black bristly hairs and bristles on body above; bristly hairs across front margin of thorax straw-coloured or pale sericeous yellowish like the fine ones on head behind; bristly hairs on ocellar tubercle, frons, and sparsely on antennal joints above black, those anteriorly on frons in 3 more yellowish or whitish; bristly

hairs on sides of tergite 1 entirely sericeous whitish; those on sides of the other tergites 2-6 much shorter than in other species of Nonalonia and even those on terminal segments relatively much shorter; brush of black bristles along upper part of mesopleuron conspicuous; bristles on coxae, the spines on femora below. and the spicules on tibiae and tarsi well developed and black; scaling on thorax above as dense as in Henica longirostris, arranged in 4 longitudinal stripes of very pale or creamy whitish ones, the lateral bands much broader, these bands separated by slightly darker and more brownish or yellowish brownish gleaming scales; scaling on scutellum more dirty whitish, creamy to yellowish; scaling across hind margin of tergite I conspicuously white; the conspicuous white scaling on rest of abdomen above present as transverse bands across hind margins of tergites 2 and 4 and entire 7, the bands on tergites 2 and 4 more or less broken up medially into small tufts, with equally conspicuous dense white scaling across hind margins on sides of tergites 3, 5 and 6, faintly across hind margin of tergite 3 and as subtriangular, central, discal patches on tergite 2 apically, 3 basally and 6 and 7 basally, and sometimes very indistinctly on tergite 5, with these central patches, however, not so spot-like and well defined as in some other species of Nomalonia; scaling on rest of the abdomen above blackish brown, becoming yellowish on sides of tergite 2; scaling on venter conspicuously white and dense along the sides, along a central line and even across hind margins of the sternites; scaling on mesopleuron and coxae whitish; that on frons in Q whitish to creamy yellowish, more whitish in 3, the sparse scaling on antennal joint 3 above black; dense scaling on stem of halteres gleaming black, and that on legs, not occupied by black ones, whitish. Wings distinctly tinged smoky greyish to smoky brownish in Q, the infuscated parts in anterior half, from middle of second basal cell to opposite end of first basal cell, darker; wings in 3 more greyish hyaline to very faintly smoky greyish, only the spot-like parts, corresponding to darker part in Q and not occupied by the subopaquely whitish areas, dark as in Q, with the bases of first and second basal cells and anal cell, costal cell, base of marginal cell, a broadish oblique, transverse, elongated band (composed of three coalescent spots) across middle of wing from base of fourth posterior cell to first longitudinal vein (opposite base of second longitudinal vein), and 4 other spots on cross veins and at base of third posterior cell respectively, subopaquely milky whitish and more defined and conspicuous in Q where the more infuscated background shows them up as fenestrae; first, third and fifth longitudinal veins and the cross veins in the fenestrae yellowish, the rest of the veins dark blackish brown or black; first longitudinal vein slightly curved up at its end, not passing straight into costal margin. Head with the interocular space on vertex in 3 as broad as ocellar tubercle but, at narrowest part, as broad as front part of tubercle; space in Q nearly or about 3 times as broad as tubercle; antennae with joint 1 a little longer but much broader than joint 2, joint 3 broadest at base, from there narrowed to about two-thirds length of joint then with the apical third slender, somewhat pointed apically; proboscis about  $3\frac{1}{2}-7\frac{1}{2}$  mm. long.

Hypopygium of 3 (text-fig. 2) with the inner excavation of beaked joints ending apically below in a bluntish lobe and with the basal strut shaped as in figure. In the Transvaal and South African Museums.

Length of body: about 10-13 mm. Length of wing: about 9-12½ mm. Locality: Little Karoo, southern boundary of Great Karoo, Nieuveld Karoo and Namaqualand.

The species is slightly variable in size, length of proboscis, extent of reddish on body and the intensity of the infuscation in the wings. This species frequents sandy patches between shrubs, dry river courses and the flowers of Mesembryanthemums. Specimens from near Oudtshoorn in the Little Karoo appear to constitute a regional form which has slightly darker wings, even in 33,



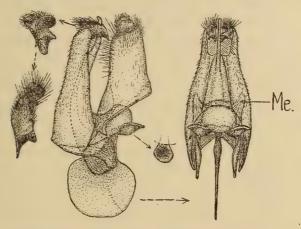
Text-fig. 2. Hypopygium of & of Nomalonia afra (Macq.).

darker reddish third antennal joints and less extensive reddish on sides of thorax.

## Nomalonia sporanthera n. sp.

This species is very near afra, having the same colour markings on body and head as the latter. It differs only in the following characters: Vestiture with the bristly elements on sides of abdomen distinctly much longer; transverse bristles across hind margins of last tergites 6 and 7 also relatively much longer, and those on venter also much longer; scaling on occiput, frons, that in more or less 4 longitudinal bands on thorax and on scutellum whiter, more chalky whitish, not yellowish, and thus more conspicuous; the white scaling on abdomen above arranged in a much more conspicuous row of central spots, especially in 3 and, together with the white ones which are arranged transversely as in afra, show a much more conspicuous white pattern; white scaling on legs also more evident and conspicuous. Head with joint 3 of antennae entirely black, less broadened in basal two-thirds, more gradually narrowed apically, thus more slender. Wings in 2 similarly infuscated, and to the same extent, in 3, however, much less than in 3 of afra, appearing more greyish hyaline, the anterior infuscation more broken up into infusions or patches, namely a spot in first basal cell at base of third longitudinal vein, a large subapical infusion in second basal cell, a larger and more quadrate infusion in apical part of first basal cell and extending into basal part of enclosed submarginal cell, a subapical infusion in enclosed submarginal cell, a darkish linear infusion along vein between discoidal and fourth posterior cells and to a certain extent fainter medial infusions in the two apical submarginal cells,

with the subopaquely whitish fenestrae obvious and more distinct in Q and similar to those of afra, but with the large fenestra apically on second basal cell and the one at origin of second longitudinal vein not continuous or coalescent and in an oblique straight line as in afra, with the first longitudinal vein straighter at its end than in afra.



TEXT-FIG. 3. Side view of hypopygium with last sternite in position, ventral view of hypopygium (last sternite removed) and views of beaked apical joint and lateral strut of *& Nomalonia sporanthera* n. sp.

Hypopygium of 3 (text-fig. 3) differs from that of afra (cf. text-fig. 2) in the slightly different shape of the beaked apical joints and more racket-shaped basal strut, the former with the beak or point very much sharper, and the excavation on inner apical aspect very distinct, the lower inner angle more prominently spine-like and projecting. The differences become obvious when the middle figures of beaked apical joint in figure 2 are compared with the upper and lower figures on left hand in figure 3. The views are apical and dorsal views of a beaked apical joint. In the ventral view of hypopygium (fig. 3), Me refers to the torn-off membrane which connected the middle part of the aedeagal complex to the last sternite which is shown in position in the side view. The species is on the whole smaller and less bulky than afra.

From 4 33 and 2 99 in the South African Museum.

Length of body: about  $8\frac{1}{2}$ -12 mm. Length of wing: about 8-11 mm. Length of proboscis: 4-5 mm.

Locality: Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931). (types) Klipvlei near Garies (Mus. Exp., Nov. 1931); Springbok (Lightfoot, Oct. 1890). West Karoo: East of Pakhuis Pass (Mus. Exp., Sept. 1947).

The specimens from Bowesdorp were caught on flowering Composites on the sandy slopes of mountains.

#### Nomalonia imitata n. sp.

Two 33 from the Moordenaars Karoo in the collections before me resemble afra even more closely. Compared with both afra and sporanthera they agree and differ in the following respects:

Body with the red or reddish distinctly less developed; red on sides of thorax above wings and the postalar calli less extensive or almost absent; base of thorax black, not yellowish or reddish; tergite 1 on sides almost entirely black, only narrow hind margin reddish; sides of abdomen distinctly less extensively reddish and hind margins of tergites only very narrowly so; venter with more black, the reddish hind margins narrower; pleurae on the whole darker, with more blackish brown; legs on the whole much darker, the paler lower parts of femora more brownish than yellowish. Vestiture with the bristles and bristly hairs developed to the same extent as in afra; bristly hairs on sides of abdomen and on venter distinctly short and poorly developed as in afra and not longish and dense as in sporanthera, those on venter being almost absent; hairs across hinder part of collar or anterior part of thorax mainly pale or whitish or at least with fewer black ones than in the other two species; pale scaling on body on the whole slightly finer than in the latter two species, the white ones on abdomen above arranged in narrower, but dense, bands across hind margins of tergites 1, 2 and 4 and on sides of 3, 5, 6 and 7 and with those on 2 and 4 broken up into spots, those discally across 3, 5, 6 and 7 more greyish yellowish; rest of scaling above small, more uniformly greyish yellowish and without any very dark or blackish ones as in the other two species and with the central band of whitish ones or patches of afra and sporanthera only represented as whitish discal patches on tergites 2 and 4 and indistinctly posteriorly (in which respect it is nearer afra); white scaling on venter on the whole denser and finer; white ones on legs also finer. Wings greyish hyaline, with more or less the same spot-likeinfusions as in sporanthera; obliquely situated whitish fenestrae in middle of wings not conspicuously confluent and in a straight row (or fascia) as in afra, but separated like those of sporanthera; middle parts of two submarginal cells however not or less distinctly infused in middle; discoidal cell on the other hand shortish and broadish like that of afra. Head with antennal joint 3 black, more rod-like, not yellowish or compressed in basal part as in afra and not so rapidly broadened in basal third as in the other species. Legs with the coxal bristles and the spines and spicules not so long or so strongly developed as in sporanthera.

From 2 33 in the South African Museum.

Length of body: about  $9-9\frac{1}{2}$  mm. Length of wing: about  $8\frac{1}{2}-9$  mm.

Locality: Lammerfontein in the Moordenaars Karoo (west of Laingsburg) (Mus. Exp., Oct. 1952).

## Nomalonia henicoides n. sp.

This species has a very great superficial resemblance to *Henica longirostris* and may easily be mistaken for it. From the preceding three species of *Nomalonia* it differs in the following respects:

The reddish on the body appears to be more conspicuously developed, being broader on sides of thorax, more apparent on pleurae and the greater part of abdomen from apical part of tergite 2 to apex in both sexes more conspicuously reddish; dark or blackish spot on each side of occiput smaller in Q and even wanting in d; third antennal joints black as in *sporanthera* and *imitata*, but shaped more like those of the former. *Vestiture* with the fine bristly elements on head behind gleaming more sericeous yellowish; pale scaling on thorax and scutellum above more creamy or greyish yellowish and not so white as in *sporanthera*; with sparser and more yellowish scaling on occiput and frons; numerous bristles across hind margin on sides of tergites I usually black and rarely entirely white; whitish scales on abdomen similarly arranged, but appearing even more conspicuous, the central row of white spots, in d especially, even more defined; black bristly hairs on sides of abdomen also longer than in

afra and very similar to sporanthera. Wings, especially in  $\mathcal{Q}$ , on the whole more dark brownish, more infuscated and even the hinder part darker, the front part in  $\mathcal{J}$  also distinctly more infuscated, and with only the subopaquely whitish fenestrae separating the dark infusions, the fenestrae in both sexes as in the three preceding species, but more conspicuous in both sexes though even more so in  $\mathcal{Q}$ , with the large fenestrae obliquely across middle of wings not in a straight line even if coalescent. Hypopygium of  $\mathcal{J}$  as in sporanthera (cf. text-fig. 3),





TEXT-FIG. 4. Lateral strut of 3 Nomalonia sporanthera n. sp. (left) and that of 3 Nomalonia henicoides n. sp. (right).

with a similar type of beaked apical joint, but with the process on each side basally of fused basal parts relatively longer and more pointed and the lateral struts (text-fig. 4 on right) smaller, less broad and more pointed.

From 2 33 and 5 99 (holotype in the British Museum, allotype in the Commonwealth Institute and paratypes in the South African Museum and in the National Museum of Southern Rhodesia).

Length of body: about  $8\frac{1}{2}$ -9 mm. Length of wing: about  $7\frac{1}{2}$ -9 mm. Length of proboscis: about  $3\frac{1}{2}$ -4 mm.

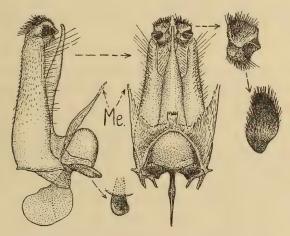
Locality: Western Cape Province: Franschhoek (Simmonds, 11 Dec. 1930); Bain's Kloof (Dickson, Dec. 1948). South-western Karoo: Ceres (Turner, Nov. 1920) (holotype). Western Cape: Bulhoek, between Clanwilliam and Klawer (Mus. Exp., Oct. 1950). Namaqualand: Nieuwoudtville (Cockerell, Nov. 1931, and Mackie, 18–22 Nov. 1931) (allotype and paratype).

## Nomalonia syrticola n. sp.

Body predominantly black above; from in front, upper parts of facial part on each side, and margin behind eyes ivory yellowish; lower part of facial region, and head below, almost blackish or dark brownish; orange brownish basal part of from in Q traversed by a very dark blackish brown or black trans-

verse fascia just before middle; greater part of head behind black (more so than in other species); reddish on sides of thorax practically absent on each side for a short distance above wing-bases; a central stripe on reddish brown scutellum and the hind margin of scutellum black; tergite I reddish on sides; greater part of abdomen above predominantly dark or black, the red more reduced than in any other species, being only visible on sides and narrowly across hind margins posteriorly; reddish on venter also visible only across hind margins and sometimes obscure; brownish pleurae much infused with blackish; legs dark toffee-brownish, but appearing dark due to dark scaling. Vestiture with the bristly hairs and bristles black as in other species, those on frons, first and second antennal joints, ocellar tubercle and sparse ones across upper part of genal fossa also black: fine hairs on head behind tinted brownish, becoming darker towards occiput on black spots; those on lower parts of head behind and on head below more sericeous or whitish; bristly hairs on sides of tergite 1 predominantly white, but sometimes with a row or some black ones across hind margin on each side, but to a lesser extent than in henicoides; black bristly hairs and bristles on sides of abdomen also long as in the three preceding species; black bristles in brush on upper mesopleuron well developed as in all other species of Nomalonia, and the black bristles on coxae conspicuous; scaling on head above and frons white or whitish; scaling on thorax in form of predominantly greyish white scales, separated or relieved by more or less longitudinal stripes of darker and more brownish-tinted scales of which the outermost band on each side is broken up into an oval and an elongated spot of dark or black scaling; scaling on humeral tubercle and a patch on each side at about middle of thoracic disc more conspicuously white; scales on scutellum greyish white; scaling on sides of tergite 1 more conspicuously whitish; dense scaling on abdomen above arranged in a pattern of white, ochreous brownish to brownish and black scales, the white ones as a central row of spots and as transverse bands across the hind margins of the tergites, of which those across tergites 2-4 (or 5) are broken up discally into small tuft-like patches (separated by spots of black scales) and those on the other tergites are only present on sides; rest of surface above, not occupied by white scales, with ochreous brownish to dark brownish and black scales, the latter as large patch basally on each side of tergite 2 and as smaller or obscure spots on sides of rest of tergites; scales on venter predominantly white, more dense across hind margins and along sides; scales on mesopleuron and coxae greyish yellowish; those on halteres black; scaling on legs predominantly dark, that basally above on hind femora appearing yellowish brownish in certain lights, but the rest of the scaling on legs dark blackish brownish to blackish in certain lights. Wings infuscated dark smoky brownish, more uniformly so in  $\mathcal{D}$ , more patchy in  $\mathcal{D}$ , but on the whole less tinged in &, with very dark medial infusions in the apical two submarginal cells, with the same number of subopaquely whitish fenestrae as in the other species and also on the same sites, these fenestrae in 3 not so easily evident as in 9, but giving the &-wing its patchy character; the infusions along veins in darker

parts of wings darker; veins predominantly very dark blackish brown, only the first, third and fifth longitudinal veins and parts of cross veins in fenestrae more brownish or yellowish brown; first longitudinal vein almost passing straight into costal margin at its end; base of the wings, including alula, darker and more blackish brown than in the other species; squamae opaquely dull yellowish, and fringed with brownish-tinted hairs which even gleam more brownish fulvous in certain lights; halteres with the knobs above more infused with brownish, not so pale as in the other species. *Head* with the interocular space in  $\Im$  at narrowest part in front of tubercle slightly broader than in the other species, but in  $\Im$  a little more than 2 to nearly, or about, 3 times as broad as tubercle; antennae with joint 1 yellowish, broader and a little longer than 2,



TEXT-FIG. 5. Side and ventral views of hypopygium and views of beaked apical joint and lateral strut of & Nomalonia syrticola n. sp.

with 2 and 3 black, with 3 elongate, slender and more rod-like than in any other species, scarcely broadened basally; palps slightly thickened apically as in sporanthera and henicoides, very much shorter than antennal joint 3; proboscis about 3-4\frac{3}{4} mm. long. Hypopygium of 3 (text-fig. 5) is characterized in having some longish bristly hairs on each side of basal part below towards apical part; beaked apical joint (apical view and dorsal view to the right) differs from that of the other species in being blunt and not prolonged into a sharp point, with the inner excavation not produced into a prong as in sporanthera and henicoides, with the dorsum covered with stoutish, almost spine-like, bristles and, in contrast with the other species, also with bristly hairs on apical joints below; aedeagus fused with basal part ventrally much lower down than in the other species; lateral struts more elongate and the basal strut more chopper-shaped. In the figure, (Me.) refers to the still attached chitinous and membranous ventral parts of last sternite after the latter had been removed.

From 41 33 and 31 99 (holotype in Transvaal Museum, allotype in South African Museum).

Length of body: about 8½-11 mm. Length of wing: about 7-10 mm.

Locality: West Cape Province: Lamberts Bay (Roberts, 20 Nov. 1917) (types); Leipoldtville (Mus. Exp., Oct. 1947); Graafwater (Mus. Exp., Oct. 1947). Namaqualand: Wallekraal (Mus. Exp., Oct. 1950). Western Karoo: Augusfontein (Calvinia Dist.) (Mus. Exp., Sept. 1947).

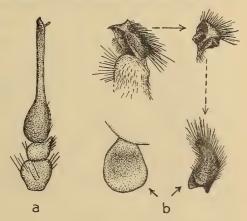
This species differs from all the other known species of this genus in having slender rod-like third antennal joints, a distinct dark central stripe on scutellum, black hind border to scutellum, a blackish or dark cavity on head behind, much reduced reddish on abdomen, predominantly dark-scaled legs, more smoky blackish tinged wings and different type of beaked apical joints of the hypopygium.

#### Nomalonia clavicornis n. sp.

Body for the greater part dark or blackish on thorax above and basal part of abdomen; from in 3, sides of from in 2, the entire facial region, and head below in both sexes, the margin of head behind eyes, and the first antennal joints ivory whitish or ivory yellowish; cavity in head behind, the occiput in part in both sexes, and the discal medial part of frons in \( \text{o} \) orange yellowish; ocellar tubercle, third antennal joints, the proboscis, and a spot on each side of occiput (\$\varphi\$ especially), black; second antennal joints reddish yellow; sides of thorax, postalar calli, base of thorax, entire scutellum, tergite 1, broad hind margin of tergite 2, and rest of abdomen above in both sexes (excluding conspicuous black basal half or more of tergite 2 and sometimes base of 3), the entire venter in both sexes, the hypopygium of 3, the greater part or entire pleurae, the coxae and greater part of legs pale reddish yellowish, reddish, or yellowish brownish. Vestiture with the bristly hairs on greater part or entire from in  $\beta$ , on apical part of from in Q, on antennal joint 1 below, on sides of facial region, on head below, on head behind, in entire or greater part of collar (especially in 3) and predominantly on front half of thorax, and even discally gleaming pale sericeous yellowish to yellowish, the pale bristly hairs on front half of thorax even gleaming pale reddish golden in certain lights; hairs on ocellar tubercle in both sexes, on greater part of from in Q, the few or sparse short bristles on antennal joints 1 and 2 above, the rest of bristly hairs and bristles on thorax and scutellum and on upper part of mesopleuron black; tuft on sides of tergite 1 predominantly whitish, but with some black ones across hind margin on each side; rest of the longish bristles on sides of abdomen and in 2 also across hind margins discally, the long ones on terminal segments in both sexes, those on venter (excepting the whitish ones at extreme base), bristles on coxae and spines and spicules on femora, tibiae, and tarsi black; scaling on frons whitish, that on thorax and scutellum in form of 4 longitudinal bands of paler, more creamy yellowish scales separated by more or less 3 bands

of more yellowish, ochreous brownish to slightly reddish brown scales, the outer band on each side more patchy; dense scaling on abdomen above (denser across hind margins) more uniformly dull creamy yellowish to whitish, that transversely on each side across base of tergite 2 more brownish, that in a conspicuous central patch on tergite 2 and along mid-dorsal line more whitish, the scaling across hind margin of tergite 1 distinctly more white; scaling on venter slightly paler and more whitish than above; scaling on mesopleuron white and on stem of halteres creamy whitish or white; scaling on coxae and greater part of femora creamy yellowish to white in certain lights, the scaling towards apical parts of femora above, that on tibiae and even tarsi above dark in certain lights, that on apices of femora definitely dark brownish. Wings distinctly tinged smoky brownish in Q, less darkly and more smoky greyish towards hind border and apical part, darker in middle and towards costal part in an area including enclosed submarginal cell, basal half of first posterior cell and discoidal cell, very much as in Henica longirostris and the other species of Nomalonia; two apical submarginal cells as darkly infused in the middle as dark parts of wing; the wings fenestrated as in Henica and the other species of Nomalonia, the same rounded subopaquely milky whitish spots being present as in afra and the others, the large spots in the middle, however, not coalescent; wings in & hyaline or greyish hyaline, with the costal cell, marginal cell, more than basal half of enclosed submarginal cell, greater part of the first basal cell and the second basal cell appearing subopaquely milky whitish in certain lights, with a dark spot near apex of second basal cell, one at base of third longitudinal vein, an elongated one sometimes near apex of first basal cell and sometimes another medially near apex of enclosed submarginal cell and occasionally with faint indications of slight infusions medially in the apical submarginal cells,

with the fenestrated areas not present or not so visible as in ♀ and only seen in certain lights; first longitudinal vein passing almost straight into costal margin in both sexes; squamae opaquely whitish and white-haired. Head with the eyes above in 3 separated by the ocellar tubercle, the narrowest part, however, only about as broad as narrow front part of tubercle; space in ♀ about 2½ times as broad as tubercle; face on sides of buccal cavity with distinctly more hairs than in the other species; antennae with joint 1 a little longer and much broader than joint 2, with joint 3 (text-fig. 6, a) distinctly clublike, the basal third broadened and



Text-fig. 6. (a) Left antenna of Nomalonia clavicornis n. sp. from outer side. (b) Side, apical and dorsal views of beaked apical joint and on left hand below the lateral strut of hypopygium of 3 Nomalonia clavicornis n. sp.

bulb-shaped (outline), then rapidly narrowed, the rest of the joint slender and rod-like, and with a few pale scales and a small black bristle above in basal part; proboscis about  $3\frac{1}{2}$ -4 mm. Hypopygium of 3 (text-fig. 6, b) with the basal projection of basal parts longer than in the preceding species, with longish hairs on sides of basal parts in neck region below as in syrticola; beaked apical joints as shown in side, apical and dorsal views in figure 6, b; lateral struts (text-fig. 6, b, on left hand below) broad like those of sporanthera and racket-shaped in outline; basal strut also very broad and racket-shaped.

From 13 33 and 8 99 (holotype in the Transvaal Museum, allotype and paratypes in South African Museum).

Length of body: about  $6\frac{1}{2}$ -10 mm. Length of wing: about  $6-9\frac{1}{2}$  mm.

Locality: Namaqualand: Hondeklipbaai (van Son, 11 Nov. 1933) (types); Wallekraal (Mus. Exp., Oct. 1950). West Cape: Leipoldtville (Mus. Exp., Nov. 1948).

This distinct species differs from all the known species of *Nomalonia* in having club-like third antennal joints, more or less uniform whitish creamy to ochreous yellowish scaling on body above, pale scaling on halteres, pale hairs on front half of thorax, the presence of more numerous and pale bristly hairs on sides of face and buccal cavity, and hyaline or greyish hyaline wings in 3.

## Gen. Peringueyimyia Bigot

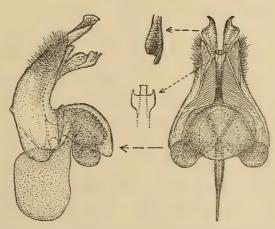
(Bigot, p. cx, Bull. Ent., in Ann. Soc. Ent. Fr. (Ser. 6), vi, 1886; Becker, p. 499, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, p. 109, Ann. S. Afr. Mus., xviii, pl. ii, fig. 19, 1921.)

This genus, which Bigot placed near the American Heterostylum Macq. (= Comastes Ost. Sack.), was referred to the Cylleniinae by Bezzi. With the preceding genera Henica and Nomalonia, which have also been referred to the Cylleniinae, it has very little in common. The chief characters of this genus are:

Body somewhat elongate, with the abdomen gradually tapering. Vestiture moderately dense above, in the form of fairly dense, erect, bristly hairs on thorax above, dense bristly hairs on first antennal joints below and on sides of face, propleurae and on sides of tergite 1, stoutish bristles on sides of thorax in front of wing-bases, on postalar calli, transversely across base of thorax, across hind margin of scutellum and rather densely on coxae, more slender and shorter bristly elements across hind margins of abdominal segments, bristles on upper part of mesopleuron and on frons, and dense hair-like scaling on abdomen above, more bushy or tuft-like ones on mesopleuron, and sparse ones on thorax above; greater part of pleurae bare, and the head below smooth and bare; fine sparse scaling present on occiput and flattened scaling on legs; venter with long dense hair. Head subglobular, narrower than broadest part of thorax;

occiput very well developed, broad and long behind eyes, with the medial cleft or sulcus long, much longer than in Henica and Nomalonia, slit-like and not broad and gap-like; occipital lobe on each side not well marked off from ocellar region by a distinct suture; eyes large and convex, not emarginate and not bisected, contiguous above for some distance in front of ocellar tubercle in 33, rather narrowly separated above in \$\sigma\$, much narrower than in Henica or Nomalonia, the upper anterior facets in 33 coarser than hinder, lateral and lower ones; frons small and triangular in 33, narrowish and only gradually diverging anteriorly in 99; ocellar tubercle slightly elongate and not much raised; antennae with the first joints only slightly separated basally, nearly as long as or subequal in length to the third joints, very much thickened and incrassate and with very dense hairs below, the third joints tapering apically, ending in an insignificant stylar element; face very short and insignificant above buccal cavity, with the genae practically non-existent, the buccal rims being separated from inner margins of eyes by a deep furrow; proboscis rather shortish and stout, striate below, and the labella spinulate; palps rather stoutish, cylindrical, blunt apically, without any separately visible joints, and with fairly dense, bristly hairs. Thorax with the base not so deeply emarginate as in the other two genera. Wings not fenestrated, but with spots on the cross veins in the one known species, with only 2 submarginal cells, 4 posterior cells of which the first is characteristically acute apically and even shortly stalked; costal cell much shorter than in Henica or Nomalonia; second longitudinal vein originating very near base of third vein and very much recurved at its end; a distinct appendix present at base of vein between submarginal cells where it bends down at right angles to third vein; vein between discoidal and third posterior cells more distinctly S-curved than in the preceding two genera; halteres clubshaped, not spatulate and not densely scaled on sides. Abdomen with tergite 2

shorter and not so conspicuously transversely depressed basally, with the hypopygial structures of 33 not conspicuously visible terminally, the hypopygium itself reversed in position, the outer or dorsal part of basal parts ventral in position and the last sternite dorsal in position; last sternite (tergite) characteristically notched or incised and gap-like in the middle apically. Legs well developed, with a row of spines on each side below on femora, more developed on



Text-fig. 7. Hypopygium of 3 of Peringueyimyia capensis Big.

middle and hind ones; tibiae with well-developed spicules and apical spurs; tarsi normal in both sexes, though the front ones in  $\mathcal{P}$  are slightly more hairy; claws more strongly developed than in *Henica* or *Nomalonia*, more distinctly curved down apically, and with the pulvilli long and well developed in both sexes. *Hypopygium* of  $\mathcal{J}$  (text-fig. 7) with the basal parts more distinctly divided into two parts by a medial suture or line, their outer apical angles prominent; beaked apical joints elongate and flattened, and shaped as shown in figures; aedeagus curved, broadened apically and shaped as shown in figure, not constituting an integral part of inner sides of basal parts as in *Henica* and *Nomalonia*, but normally joined on to them on each side by a ramus; middle part of aedeagal complex also broad and helmet-shaped; lateral struts also very and remarkably broad. Only the unique genotype-species *Peringueyimyia capensis* Bigot of this genus is known.

#### Peringueyimyia capensis Bigot

(Bigot, pp. cx and cxi, Bull. Ent., in Ann. Soc. Ent. Fr. (Ser. 6), vi, 1886; Bezzi, p. 110, Ann. S. Afr. Mus., xviii, pl. ii, fig. 19, 1921.)

The species has been more fully redescribed and figured by Bezzi (loc. cit.) but may be easily recognized by the following characters:

Body predominantly black; postalar calli, sutural part between thorax and mesopleuron, and discal part or greater discal part of scutellum ferruginous brownish; hind margins of tergites 2-6 in 2 and 2-7 in 3 and more narrowly on 8 in  $\beta$  and 7 in  $\varphi$ , and the narrow hind margins of sternites ivory yellowish, the ivory yellowish edges on tergites margined on basal side with yellowish or reddish brown; pleurae sometimes with infusions of brownish; legs with the coxae and femora black, the tibiae and tarsi yellowish brownish to brownish, the apical parts of tarsi dark and greater part of claws black. Vestiture with the bristly elements on front part of frons in Q, the dense hairs on antennal joints I below in both sexes, the hairs on sides in facial region, those densely across front margin of thorax and in propleural tuft, the short and fine ones around margin of cavity behind head, the hairs on mesopleuron, the sparse ones on middle parts of pleurae, the dense hairs on sides of tergite 1, intermixed bristly hairs on front and middle coxae, the denser ones on hind coxae and the long bristly hairs on venter white or whitish; bristles across hind part of scutellum, some intermixed ones across front margin of thorax and most of those on upper part of mesopleuron, especially in Q, and the transverse bristly elements across the tergites gleaming sericeous whitish, sericeous yellowish to slightly reddish golden in different lights, their basal parts being more reddish golden in certain lights; bristly hairs on ocellar tubercle appearing dark, but some also gleaming sericeous in certain lights; rest of the bristly elements on the frons, the short bristles on antennal joint 1 above, those on palps, the short bristles on occiput, the dense bristly elements and stoutish bristles on thorax above, discally on scutellum, rather sparse ones on tergites above and especially on tergite 7 above in  $\mathcal{P}$ , and more conspicuously on sides and ventrally on segments 6 and 7 in Q, and on sides and below on segments 6–8 in Q black (in a slight variety the bristly elements on front part and disc of thorax more gleaming reddish golden); rest of bristles on coxae and the spines and spicules on legs black; fine, sparse scaling on occiput greyish white to greyish yellowish, the intermixed woolly scaling on thorax above silvery whitish or greyish silvery, some more or less condensed into a small silvery spot on each side discally at about middle; dense hair-like scaling on abdomen above greyish whitish in 3, sometimes slightly more greyish yellowish in Q, and in both sexes more densely across hind margins of the tergites, much denser on sides and, in 3 especially, more chalky whitish, with tergite 7 in ♀ free of scaling and appearing more shiny black; hair-like scaling on venter more uniformly white or whitish especially across the hind margins, but with blackish scaling and fine hairs on last two segments in Q or last three in 3; scaling on femora for the greater part gleaming opalescent whitish below and on hind ones basally above, that on upper surfaces dark or blackish, that on tibiae with a slightly yellowish opalescent sheen. Wings greyish hyaline, vitreous shining, but in some 99 with a distinct brownish tinge in the middle region, with the base yellowish, the extreme base dark brownish in both sexes; costal cell and basal part opaquely yellowish whitish to yellowish in both sexes; a conspicuous blackish brown spot-like infuscation at the common base of second and third veins, on middle across vein and at base of second submarginal cell and smaller spot-like infuscations on basal cross veins of second, third and fourth posterior cells, those at base of second and third cells sometimes minute or indistinct in some 33; veins dark blackish brown, becoming paler and even yellowish basally; middle cross vein much beyond middle of discoidal cell; squamae opaquely whitish, their front angle black, and their fringe of hairs gleaming pale reddish golden or fulvous in certain lights; halteres yellowish, with very pale or almost whitish knobs. Head with eyes in 3 contiguous in front of ocellar tubercle for a distance only a little shorter than length of longish tubercle; space on vertex in 2 a little less than 2 times as broad as tubercle; frons with an indication of a longitudinal line or depression and a transverse one just before middle in Q, the apical part in both sexes feebly depressed medially; antennae with joint I strongly incrassate, sub-barrel-shaped, subequal or slightly shorter than 3, with 3 sub-spindle-shaped, especially in 2, broadest a little before middle, the apical part or half, however, more slender and tapering; proboscis about 2-4 mm. long. Hypopygium of 3 (text-fig. 7) with the basal parts covered with dense bristly hairs apically above; beaked apical joints with the inner apical part curled over scroll-like; aedeagus with the apical broadened part as shown in figures.

In the Commonwealth Institute and South African Museum.

Length of body: about  $8\frac{1}{2}$ -13 mm. Length of wing: about  $8\frac{1}{2}$ -12 mm.

Locality: Namaqualand, Bushmanland, Olifants River Valley, and on the western Karoo escarpment.

The species is apparently slightly variable; the specimens from Calvinia differing from those from Namaqualand in having more numerous and distinctly more conspicuous reddish yellowish or gleaming pale reddish golden bristly hairs and bristles on thorax in front, discally, on sides and on postalar calli and not predominantly blackish ones, and the bristly elements on frons also more gleaming reddish golden and not black.

#### Subfam. Tomomyzinae

Following Becker (pp. 434 and 457, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912), the genera Tomomyza, Plesiocera and Antonia, together with Pantostomus and the new Plesiocerine genera Conomyza, Coryprosopa, Prorostoma and Epacmoides, are provisionally referred to the subfamily Tomomyzinae. The chief character by means of which members of this subfamily may be readily distinguished from representatives of the Lomatiinae is the presence of a characteristic snout-like prolongation of the face or facial region; a character which is developed to a variable extent in the various genera enumerated above. An examination of these genera, however, shows that there is great disparity in the rest of their external characters and that the conically produced facial region is practically the only important link between them and as such is merely a convenient character for lumping them together. It is evident that these genera fall into three natural groups, each of which may even be raised to the rank of a separate subfamily having very little in common with one another. In the key to the genera the chief characters distinguishing these three groups, namely the Tomomyza-group (Tomomyza and Pantostomus), the Plesiocera-group (Plesiocera, Conomyza, Coryprosopa, Prorostoma and Epacmoides), and the Antonia-group (Antonia), are summarized.

From these characters it is evident that the aberrant genus Antonia differs from the genera in the other two groups in so many important features that it deserves a separate subfamily-status. On the other hand the members of the Plesiocera-group have superficially more in common with the Aphoebantus- and Petrorossia-groups of the Lomatiinae than with Tomomyza and Pantostomus, and for this reason have been referred to the Lomatiinae by authors. The Lomatiinae itself, however, is a subfamily which at present has no taxonomic homogeneity and is composed of disparate elements. A revision of all the genera, at present included in the Lomatiinae, is necessary to elucidate this problem of subfamily allocation, and such a survey will no doubt also throw some light on the future status of the genera here lumped together with Tomomyza and indicate whether or not they should be included as groups within the Lomatiinae.

#### Tomomyza-group

To this group belong two remarkable South African genera, *Tomomyza* Wied. and *Pantostomus* Bezz., which are fully dealt with in the following pages.

#### Gen. Pantostomus Bezz.

(Bezzi, pp. 69 and 79, Broteria (Ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 27, The Bombyliidae of the Ethiopian Region, 1924; Malloch, p. 119, Stylops, i, 1932.)

This genus, as stated by Malloch (loc. cit.), was never fully described by Bezzi. All references to it are in the keys to the genera compiled by Bezzi and in the form of a very brief comparison with another genus, *Tomomyza* Wied. Malloch on the other hand incorporated a generic description in his description of what he took to be the genotype-species of Bezzi. The true generic identity of this peculiar and remarkable genus can, however, not be gleaned from either Bezzi's keys or Malloch's specific description. A more complete redescription of this genus, as based on the true genotype-species and the new species in the collections before me, is as follows:

Body slightly elongate, having a distant resemblance to some members of the Syrphidae or even some Hymenoptera, predominantly reddish brown or with much reddish brown in all the known species and yellowish on hind margins of tergites. Vestiture in form of brilliantly metallic-gleaming, resplendent or highly reflecting, fine, decumbent hairs or hair-like scaling on body above and on legs, which gleam either silvery whitish, brilliantly brassy or golden in different lights and which, owing to their concentrations in lines or bands on the thorax and as transverse patches on the abdomen above, give these insects a beautiful chequered appearance, especially on the abdomen above, with in addition very fine silvery pile or tomentum along sides of facial region, in a band behind each eye, on pleurae, metapleurae and on sides of tergite 1, and with comparatively shortish, erect hairs on head above, thorax and scutellum above, and on legs in some species; sides of facial region and greater part of pleurae, however, comparatively bare, except for the fine pruinescence visible in certain lights, and without any metanotal tuft. Head, in relation to body, large, broader across eyes than across broadest part of thorax; facial region characteristically conically prominent or produced, the apical part of frons taking part in this conical prominence, and the antennae inserted at apex of this cone; occiput broad, with a medial, deep, hole-like depression behind ocellar region which is continued posteriorly as a slit-like sulcus, the two lobes of the occiput thus contiguous; eyes large, prominent, the hind margin only slightly sinuate or with a shallow emargination, not bisected, separated above in both sexes, but more narrowly in 33 and even in 99 not, or scarcely, more than 2 times distance between outer margins of posterior ocelli; ocelli distinct, the anterior medial one quite 1½-2 times as far away from posterior ones as the space between the latter, the anterior one situated in a slight depression which is continued anteriorly as a faint or even distinct groove, with the posterior ones on the sides of a tubercular elevation which may sometimes be prominent, narrow and ridge-like, and continued posteriorly as a central ridge; frons comparatively narrowish, the inner margins of eyes more or less parallel or subparallel to a

distinct and sometimes deep transverse frontal depression at about, or just beyond, the middle, from there gradually diverging apically and apparently more so in 33, the apical part of frons raised and produced, taking part in forming the conical prominence of facial region, the apical angle of this anterior frontal part on each side prominent, even distinctly produced, and constituting the outer walls of the depressions or fossae in which antennae are inserted; facial region together with front part of frons constituting the prominent conical process; face above buccal cavity however short, the downwardly sloping buccal rims sharp or edge-like; genae absent or only a slight vestige of each indicated on each side where the shallow or very feeble groove-like depression between face and antennal insertions leads obliquely down into a scarcely perceptible depression or feeble fossa along inner margin of eye; buccal cavity itself deep, and the facial region more or less shining; antennae (text-figs. 8-11, a) shortish, longer in 99, inserted practically at apex of cone in distinct fossae, joint 1 short, but a little longer than 2, sometimes longer or only a little shorter than joint 3, with 2 transverse, especially in 33, with joint 3 laterally compressed, more so in 33, broad and flattened in 33 especially, sometimes leaf-shaped, on the whole pear-shaped, broadest near base and tapering or narrowed apically, slightly longer in QQ, also narrower and sometimes shortly pod-shaped, broadly depressed or flattened on inner side in 33, the depression tending to be more groove-like in QQ, ending apically on upper inner aspect in a small stylar element, with joints 1 and 2 sparsely covered with gleaming short hairs, and inner sides of joints 2 and 3 sometimes showing a silvery pruinescence in certain lights; proboscis relatively short, only projecting very slightly beyond upper part of buccal cavity, but not beyond antennae, on the whole stoutish, the labial part below striate or finely strigilose, the labella pointed apically, and usually dull owing to fine striae and fine spinules; palps slender, sometimes quite as long as antennae, slightly broadened and flattened apically, with a very short oval apical joint indicated, with fine and sometimes relatively long hairs. Thorax rectangular, the humeral angles rather prominent and sides between thorax and mesopleuron, especially anteriorly, sharp and edge-like, the discal surface of thorax and scutellum distinctly finely punctured; greater part of pleurae smooth, finely punctured or dull only where there is pubescence on mesopleuron and upper depressed part of sternopleuron. Wings (cf. text-fig. 2, Stylops, i, p. 119) vitreous hyaline, greyish hyaline, but sometimes tinged yellowish or yellowish brownish in basal three-quarters or in basal part and basal half of first basal cell, without any basal comb; only 2 submarginal cells; 4 open posterior cells; alula wanting, and the axillary lobe narrowish; second longitudinal vein branching off from third a little distance away from base, and very much recurved at its end; vein between submarginal cells bent down at right angles to third vein, and usually provided with an appendix; middle cross vein beyond middle of discoidal cell; second basal cell rather long; halteres with the convex part of knobs transversely across apex. Abdomen curved, somewhat cylindrical, remarkable in that segments 2-4 and sometimes also 5 are

discally convex, appearing humped from side, each discally with a slight or deep foveate depression on each side nearer the middle, the highest point discally on tergites 2-4 being slightly beyond the middle, with tergite 1 depressed medially, with a feebler and smaller depression on each side nearer base and more to side on tergite 5, and sometimes even on 6; upper surface of abdomen distinctly and sometimes coarsely punctured, the punctures finer and denser in depressions and basally or on sides of tergites basally and towards apex of abdomen, those on tergite I medially sometimes transversely rugose, with the medial apical parts and hind margins of the tergites smooth and free from punctures and usually yellowish; sides of tergites slightly projecting over and beyond sides of sternites; sternites not distinctly punctured in some species, but more distinctly in others. Legs without any spines on femora and without any spicules on tibiae and tarsi, the spicules on tibiae represented by short, bristly hairs, the spurs on tibiae small and insignificant, the entire legs sometimes, however, covered with fine, longish hairs; claws well developed, slender and curved down apically, with the pulvilli also well developed, extending beyond middle of claws in both sexes. *Hypopygium* of 33 (text-figs. 8–11, b and 12) very uniform and similar in all the species, usually situated on ventral aspect of abdomen, the last sternite dorsal in position; the basal part single, not divided into two by a medial suture or depression, covered on dorsum with fine, dense hair, with the outer apical part on each side, bounding the apical joints, produced and usually somewhat pointed or angular apically, but sometimes rounded; beaked apical joints claw-shaped when viewed from side, very much flattened or laterally compressed (cf. text-fig. 9 b, to the right); aedeagus very uniform throughout, the apical part slightly curved upwards; basal strut in some species with a distinctly visible lateral process on each side basally (cf. text-fig. 10 b, to right).

The genus is a very peculiar one and cannot be confused with any other South African genus of Bombyliidae. Its nearest ally is the next genus *Tomomyza*, which, however, differs from it in many essential features. Representatives of *Pantostomus* bear a marked superficial resemblance in the general shape of the body, behaviour and in flight to some South African genera of Syrphidae, such as *Paragus*, *Melanostoma* and *Xanthogramma* and they even suggest marked Hymenopteroid features. The species frequent sand or are found hovering around Mesembryanthemums or Composites. The species on which the genus is based is *Pantostomus gibbiventris* Bezz., nec Malloch. This was the only species known to Bezzi. In the collections before me at least 9 species are represented which may be separated by the following key:

- (a) Erect vestiture in form of fine, dense hairs distinctly developed and conspicuous on head, thorax and scutellum above, on sides of tergite 1 and on legs, giving the insects a distinct hirsute appearance; decumbent gleaming pile or scaling on body also distinctly longer appearing more hair-like; wings almost entirely hyaline in both sexes, or only tinged yellowish brownish, even in ♀♀, to a very much lesser extent.
  - (b) Erect vestiture on body almost absent, only present on ocellar region, entirely absent on thorax above and on legs, the vestiture on body represented only by depressed and

decumbent gleaming pile or scaling, which is distinctly shorter and more scale-like, especially on abdomen, not giving these insects a hirsute appearance; wings, especially in 99, rarely predominantly hyaline, usually more distinctly tinged yellowish or yellowish brownish to a variable extent.

- - (b) A much narrower, dark, central line on thorax, and also with indications of a dark line on each side, the thorax appearing darker, without any conspicuous black central markings on abdomen above discally, but with black or blackish on each side apically of the tergites, in ♀ especially; puncturation on thorax above slightly denser and more conspicuous, that on abdomen above distinctly coarser apically and on sides apically than basally and in depressions; head and body above duller or less shining; abdomen above with conspicuous, deep and broadish depressions on each side of tergites 2-4, causing the midline to be more conspicuously raised and ridge-like; frons with the ocellar region distinctly more prominent and longitudinally ridge-like, separated from sides by groove-like depressions, covered with predominant golden yellowish hair or with fewer dark hairs, and with the apical outer angles, bounding antennal sockets, distinctly more prominent, more produced; thorax and scutellum with much denser depressed scales, and with much denser depressed pile on abdomen above, gleaming more brassy or even more pale golden discally in certain lights.

 $3 \circ pilosulus n. sp. (p. 58)$ 

- 3. (a) Abdomen with tergite 1 distinctly, or more coarsely, transversely rugulose discally and the coarser punctures on rest of tergites above apparently coarser; head with the transverse frontal depression distinctly deeper, especially in \$\partial \chi\$, the raised ocellar region from side more humped, and the declivity from it to depression, especially in \$\partial \chi\$, steeper; frons relatively broader in both sexes and the outer apical angle, bounding antennal sockets, distinctly longer, more prominent; wings distinctly tinged yellowish brownish in basal two-thirds in both sexes, the apical third more or less clearer. . . 4
  - (b) Abdomen with tergite 1 not, or scarcely, visibly transversely rugulose discally, and with the coarser punctures on rest of the tergites less coarse; head with the transverse frontal depression much shallower, even in φφ, the ocellar part from side less humped and its anterior declivity more sloping; frons relatively much narrower in both sexes and the outer apical angles distinctly less produced, less prominent; wings distinctly less tinged, the greater part vitreous hyaline or, if tinged in some φφ, they are more uniformly and more faintly tinged yellowish.
- - (b) Ocellar region less prominent, the anterior declivity to transverse depression more sloping, the depression itself slightly shallower; outer apical angles of frons blunter, more shiningly rounded and dilated knob-like, its sides smoother, more convex; bristly hairs on tubercle and frons distinctly longer, denser, more conspicuous, and with

numerous dark or black hairs; proboscis more slender, more coarsely longitudinally striate; puncturation on sides of tergites 2 and 3 sparser, not so dense or rasp-like as on tergites 4-6; knobs of halteres entirely white above.

3 = bullulatus n. sp. (p. 63)

- - (b) Wings more distinctly and more extensively tinged, the basal half of first basal cell, the second basal cell and even bases of discoidal and fourth posterior cells in ♂ yellowish brownish to brownish, and in ♀ more extensively tinged to much beyond middle of wings, becoming imperceptibly clearer only at apex; hairs on ocellar part and frons distinctly denser and longer; hairs on femora and tibiae distinctly longer, more shaggy, especially in ♀; scaling on abdomen above denser and longer.

♂ ♀ tinctellipennis n. sp. (p. 67)

- 7. (a) Antennal joint 3 (text-fig. 11, a) usually tapering to a fairly sharp point, in 3 especially, ending in a style on inner upper apical aspect and, even if tending to be blunt apically, without a slight prominence on lower apical part; puncturation on sides of tergites 2 and 3 in apical half usually sparser, the sides of these tergites tending to be more shiny; dark bands across apical part on each side of tergites narrower, sometimes less conspicuously black, with less constant and less conspicuous black along central ridge on tergites 2-5; body below and legs paler; hypopygium of 3 (text-fig. 11, b) with the apical margin of basal part less sinuous and less pointed apically, and the basal strut not distinctly incised along its dorsal margin and not produced at its end.

 $3 \circ capensis$  n. sp. (p. 64)

- (b) Antennal joint 3 distinctly more blunt or even subtruncate apically, ending apically in a style on inner upper apical aspect and a slight prominence on lower inner apical aspect; puncturation on sides of tergites 2 and 3 tending to be denser; dark bands across apical part on each side of tergites distinctly broader, blacker, more conspicuous and also with a more constant black central band on tergites 2-5 above; body below and legs darker brownish; hypopygium of ♂ (text-fig. 11, c) with the outer apical margin of basal part sinuous, distinctly more pointed apically, and with the basal strut more deeply and distinctly incised along its dorsal margin. . ♂ ♀ melanotidus n. sp. (p. 66)
- 8. (a) Hairs on ocellar tubercle and frons distinctly denser and longer; that on femora and tibiae distinctly much longer and denser; scaling on body above denser, that on sides of thorax above longer and denser; puncturation on sides of tergites 2 and 3 sparser, these two tergites also tending to be more constantly dark or black on sides; ivory yellowish across hind parts of tergites discally more extensive and broader.

♀ psammophilus n. sp. (p. 68)

(b) Hairs on ocellar tubercle and frons distinctly sparser and shorter; that on femora and tibiae very much sparser and shorter, not conspicuous; scaling on body above less dense, that on sides of thorax comparatively shorter; puncturation on sides of tergites 2 and 3 denser and in ♂ even finer; ivory yellowish across hind parts of tergites discally less extensive and narrower. ♣ ♀ mallochi n. sp. (p. 69)

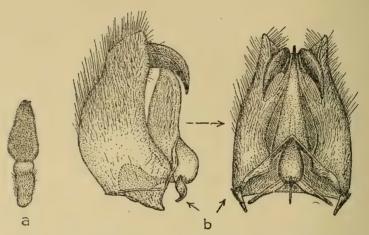
Pantostomus gibbiventris Bezz., nec Malloch (Bezzi, p. 70, Broteria (Ser. Zool.), xx, fasc. ii, 1922.)

There is no doubt that a number of  $\Im\Im$  and  $\Im$  of this genus in the collections before me belong to this species on which Bezzi founded the genus *Pantostomus*. A  $\Im$  and a  $\Im$ , both from Willowmore and now housed in the Transvaal Museum, have been labelled as *Pantostomus gibbiventris* by the late Dr. Brauns. The  $\Im$  also has a red label 'Bez. 1' attached to it, proving that it constituted one of the same batch sent to Bezzi. There is also no doubt that this species is entirely different from the species which Malloch referred to and described as *gibbiventris* Bezz. (see Malloch, p. 119, *Stylops*, i, 1932). Malloch at the time was not aware of the fact that there are more than one species in Southern Africa. The true *gibbiventris* Bezz. is a very distinct species and cannot be confused with any other known South African species. As Bezzi never described this species in detail, it is fully described below:

Body predominantly reddish brown; occiput and frons even appearing more reddish; head below, inside of buccal cavity, proboscis, palps, eyes and the third antennal joints, the latter especially in 3, black or blackish; a constant broadish central band on thorax above, sometimes a central row of elongated spots in basal halves of tergites, but more constantly on tergite 1 and medially in basal half of tergite 2, and sometimes infusions or spots on sides or across basal or apical parts on sides of tergites 2-5 or on some of them, black; infusions on sides of abdomen sometimes more brownish; hind margins of tergites 1-5, and sometimes also 6, smoothly ivory yellowish, broadest discally along mid-dorsal line and not reaching extreme sides of tergites; sides of buccal part also shining yellowish to a large extent; humeral angles also yellowish; hind margins of sternites also yellowish to ivory yellowish and sometimes with a dark or brownish central line on venter; legs predominantly pale yellowish brownish to reddish brownish, the apical parts of tarsi more brownish and the articulation between trochanters and femora, and the apices of the claws black; integument of body shining, especially the occiput, frons and facial parts, with these parts also smooth; thorax and scutellum above covered with fine separated, but uniform, punctures; abdomen above more densely and more coarsely, but also comparatively uniformly punctured, the punctures on sides of tergites 2-5 and especially 3-5, finer and more rugulose, and those discally above towards apices of the tergites perceptibly coarser than the rest of the punctures; integument across medial part of tergite 1 transversely slightly wrinkled, and the puncturation on sides of tergite 1 finer and more like that on thorax above; without any distinct, or usually with only a very feeble and shallow and smallish, depression on each side of middle of the humped tergites 2-4, those on tergites 2 and 3, however, more constantly present. Vestiture composed of fine, erect hairs and decumbent or subdepressed, scale-like or setae-like pile and also very fine silvery pruinescence or tomentum, the fine, erect hairs confined to ocellar and frontal part of head, to thorax and scutellum above, to sides of tergite 1 and to

legs; erect pile on occipital and ocellar region black; that on frons in front of front ocellus gleaming yellowish sericeous to brassy yellowish, especially in  $\mathfrak{P}$ ; that on thorax and scutellum above appearing greyish in certain lights, but with a distinct yellowish or brownish tint or even subgolden when viewed from side or obliquely in front; that on legs appearing longer and gleaming sericeous yellowish to pale sericeous; fine scale-like depressed pile on disc of thorax and scutellum gleaming subgolden to even reddish golden in different lights; denser and much longer pubescence in the band along sides of thorax and the longish pubescence on mesonotum appearing as a whitish band on each side from above, but more shining sericeous yellowish in certain lights; pubescence on sides of tergite 1 predominantly sericeous whitish; the somewhat decumbent pile in punctures on abdomen above predominantly gleaming sericeous or silvery whitish, giving the abdomen a chequered appearance owing to the different arrangement of the different patches across the tergites; pile on venter also predominantly silvery; some fine pruinescence on sides of buccal region along inner margins of eyes, a dense longitudinal band behind each eye on sides of head, and the pruinescence or microscopic pile on metapleural part, on extreme sides of tergite 1 and to a certain extent on coxae gleaming like a film of silver; scale-like pubescence on legs, especially tibiae, almost glittering silvery whitish to sericeous yellowish in certain lights. Wings predominantly vitreous hyaline, iridescent, the extreme base and to a certain extent the costal cell and upper part of basal half of first basal cell in  $\Im$ , and in addition also to a certain extent the second basal cell and basal part of marginal cell in  $\Im$ , tinged subopaquely yellowish or pale yellowish brownish; veins reddish yellow or yellowish in basal half of wings, the rest of veins and vein between anal and axillary cells very dark brownish to blackish brown; hinder part of squamae opaquely whitish or yellowish whitish, fringed with pale or whitish hairs; halteres ivory whitish or ivory yellowish. Head with the interocular space on vertex in  $\delta$  nearly, or sometimes quite, 2 times distance between outer margins of posterior ocelli, distinctly broader in  $\mathfrak{P}$ , though bearing the same relationship, i.e. as broad as 2 times distance between outer margins of posterior ocelli; ocellar prominence convex and tumid, more rounded and not so well marked off on sides by a furrow as in the other species and not so longitudinally ridge-like as in other species; from with the transverse depression distinct, though appearing shallow in comparison with some other species, the basal part of frons and ocellar region not rising so steeply, with the sides of apical part of frons tumidly prominent or subprominent, the outer apical angles, bounding the antennal fossae, however, not produced or very angularly prominent; antennae (text-fig. 8, a) relatively longer in  $\mathcal{D}$  than in  $\mathcal{D}$ , with joint 1 about twice, or a little more, times as long as transverse joint 2, but shorter than joint 3, cylindrical, and with fine sparse sericeous pile, with 3 distinctly broader and more leaf-shaped in  $\mathcal{D}$  (see figure), broadest nearer base, more broadly depressed on inner side, narrower and appearing more elongate in Q, the depression on inner side more groove-like or narrower, ending apically in an upper apical stylar

element and a lower bluntish point in both sexes, the apex of joint in  $\Im$ , however, appearing more distinctly bifid in certain positions, the stylar element in  $\Im$  on the other hand being relatively more prominent; facial part comparatively smooth and shining, with only a few sparse hairs on sides of upper half of buccal cavity; proboscis relatively stoutish, about  $1\frac{1}{2}-2$  mm. long, its labial part shining and longitudinally comparatively coarsely striate, the labella more finely striate and finely spinulate; palps relatively long and slender, slightly longer than antennae, with longish fine hairs on lower outer surface. Hypopygium



Text-fig. 8. (a) Left antenna from outer side of 3 Pantostomus gibbiventris Bezz.

(b) Side and ventral (dorsal) views of hypopygium of same.

of 3 (text-fig. 8, b) with the outer apical part of basal part more angular than in the other species; beaked apical joints more arcuately curved; basal strut with the lower margin more distinctly incised than in other species.

In the British, Transvaal and South African Museums.

Length of body: about  $5\frac{1}{2}$ -8 mm. Length of wing: about 5-6 mm.

Locality: Little Karoo, Southern Karoo, Koup Karoo, and Nieuveld Karoo.

This species is easily recognized by the central broad black stripe on thorax, sometimes continued on to abdomen above, by the more shining and broadish interocular and frontal part of head, the blunter outer apical angles of anterior part of frons, the more uniform puncturation on abdomen, by the much feebler depressions on humped tergites and by the hirsute appearance due to erect hairs on thorax, scutellum and on legs.

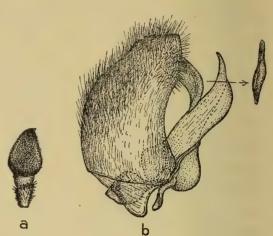
## Pantostomus pilosulus n. sp.

Body predominantly yellowish brown; eyes sienna brownish to dark brown; a narrowish central band on thorax, broadening at base, a less constant lateral fascia on each side of disc of thorax, usually broken up into a distinct anterior

spot and a more indistinct posterior one, a spot basally on each side of scutellum, the depressed discal part of tergite 1, sometimes the sides of tergite 1, and the sides, especially across hinder part or hind margins of tergites 2–6, black or blackish; sides of the abdominal tergites in  $\mathcal{D}$  on the whole much darker than in  $\mathcal{D}$  where they are often only dark brownish, with a tendency for the black on sides of abdomen in Q to be more conspicuous as a transverse black fascia more or less across apical part or across hind margins of the tergites and extending discally, with a central dark or even blackish band on venter and even with a tendency for the middorsal parts of the tergites in some 99 and especially tergites 4 and 5 or 4–6 to be dark or even blackish; proboscis very dark blackish brown to blackish; third antennal joints, especially in 3, also very dark or blackish; head below blackish; sides of facial region to fossa tending to be dark; region round the ocelli and medially in front of front ocellus in basal part of frons, especially in Q, blackish or tending to be dark; mesopleuron darker brownish or more blackish brown than rest of pleurae in both sexes; sides of buccal region yellowish; humeral angles pale yellowish; postalar calli sometimes also yellowish; humeral angles pale yellowish; postalar calli sometimes also yellowish, especially in  $\mathfrak{P}$ ; hind margins of the tergites and sternites ivory yellowish to yellow, the yellowish on tergites not extending to extreme sides and broader medially and discally where they appear as a central row of smooth triangular spots; legs predominantly yellowish brownish to pale yellowish brownish, upper surface of hind femora tending to be darker, especially in some  $\mathfrak{P}$ , the apices of the tarsi also slightly more brownish, the apical parts of the trochanters and the apices of the claws black; integument slightly shining, the front part of frons and the facial part more so, on the whole however distinctly less shining than in *gibbiventris*; occipital and ocellar region also more punctured, also with fine, uniform, but slightly denser puncturation on thorax and scutellum; puncturation on abdomen above coarser, and distinctly less uniform than in *gibbiventris*, that across apical part of the tergites in form of more separated and coarser punctures, that towards base discally and in the depressions denser than apical puncturation but also coarser than in *gibbiventris*, that on sides of tergites 4–6 fine and rugulose, finer than on sides of 2 and 3, with very faint or scarcely discernible puncturation on sides of 1, with slight transverse rugae discally in the depression on tergite 1 and with the hind margins of the other tergites discally smooth; a broad, deep, foveate depression on each side discally of tergites 2–4, and sometimes a smaller and shallower one on tergite 5, these depressions very conspicuous and giving tergites 2–4 the appearance of also being centrally ridged; integument of pleurae, except for the fine puncturation on mesopleuron and the dull rugulose appearance on upper part of sternopleuron, smooth and shining. Vestiture on the whole denser than in gibbiventris, also in form of erect hairs on interocular part, thorax and scutellum above, sides of tergite 1, on mesopleuron and legs, and decumbent, scale-like pile on rest of body; erect hairs on occiput, ocellar part and basal part of frons gleaming brassy, pale golden or sericeous yellowish; that on posterior ocelli and in medial part of transverse frontal depression darker, more brownish and in 2 black;

that on disc of thorax and scutellum appearing greyish in certain lights but predominantly gleaming sericeous, the basal parts of individual hairs however distinctly tinted brownish, and those along the dark fasciae on disc, especially in  $\mathfrak{P}$ , distinctly blackish brown to blackish especially when viewed from side; hairs on sides of tergite I gleaming sericeous whitish; those on mesopleuron, very sparsely on metapleural parts and fairly densely on legs gleaming sericeous

whitish, sericeous yellowish to pale golden in different lights; decumbent pile on thorax and scutellum also denser than in gibbiventris, predominantly gleaming or glittering pale brassy yellowish or sericeous yellowish to almost silvery whitish, but with an admixture of reddish golden elements in different lights, the band of denser and longer pile on each side appearing sericeous whitish in certain lights; dense setae-like pile on abdomen above gleaming velvety and very pale seri-



Text-fig. 9. (a) Left antenna (from outer side) of *3 Pantostomus pilosulus* n. sp. (b) Side view of hypopygium of 3 of same species.

ceous yellowish, especially discally, but almost silvery in other lights, especially on sides of abdomen, the general appearance also chequered or velvety as in gibbiventris; pile on occiput glittering pale brassy to even pale golden; a longitudinal band of fine gleaming silvery tomentum behind each eye and similar silvery pruinescence on sides of tergite 1, sides of visible metanotal part and metapleural parts; decumbent scale-like elements on legs gleaming or glittering pale brassy to pale golden yellowish. Wings predominantly vitreous hyaline, shining, iridescent, with the base, basal part of costal cell and basal half of first basal cell in a slightly subopaquely yellowish, sometimes scarcely discernible, with the same area and to a great extent also part of second basal cell in 2 similarly tinged; veins in this basal half more yellowish or yellowish brown, the rest of the veins darker brownish or more blackish brown; hinder half of squamae subopaquely whitish, and bordered with sericeous whitish hairs; halteres dirty yellowish, the knobs above tending to be darkened, even distinctly dark brownish in some specimens. Head with the eyes separated above in both sexes by a space about 2 times distance between outer margins of posterior ocelli, but the space appearing wider in 9; ocellar area between posterior ocelli and front ocellus distinctly raised, elongate and ridge-like, the posterior ocelli flanking this ridge on each side, and space between this medial ridge and eyes lower and slightly depressed, the ridge continued posteriorly to occipital pore;

from with the transverse depression slightly deeper than in gibbiventris, its outer apical angles, bounding antennal fossae, distinctly more prominent and more produced than in gibbiventris, its sides more flattened and not so tumid; antennae (text-fig. 9, a of 3) with joint 1 relatively shorter than in gibbiventris, but also about 2 times as long as joint 2, which is very transverse above, with joint 3 distinctly longer than 1 and 2 combined, very broad and leaf-shaped in 3, appearing almost triangular, broadest just before base, flattened and broadly flattened on inner side, narrower and more elongate in 3, and more groove-like depressed on inner side, somewhat bluntish or subtruncate apically in both sexes, and with a visible stylar element apically on inner aspect; proboscis about 1-2 mm. long, longitudinally more finely striate on labial part than in gibbiventris; palps brownish, distinctly and slightly shorter than in gibbiventris, not or scarcely as long as antennae and also hairy. Hypopygium of 3 (text-fig. 9, b) with the basal strut shaped differently from that of gibbiventris and with a distinctly visible flattened lateral process on each side basally and with the apical angles of basal part less sharply angular.

From 6 33 and 8 99 (types in the South African Museum).

Length of body: about 5-9 mm. Length of wing: about 4-7 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (types); Springbok (Lightfoot, Nov. 1890).

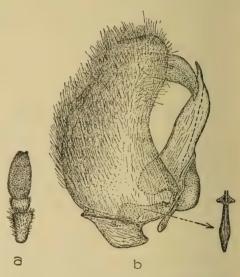
This species can easily be distinguished from gibbiventris by the comparative characters mentioned above, but chiefly by the deep and broad depressions and coarser puncturation on abdomen above, the slightly more produced outer apical angles of frons and more ridge-like ocellar region. From the following species it may be distinguished by its hirsute appearance due to erect hairs on thorax, scutellum and legs. This species frequents sandy patches between shrubs on which it settles like so many other Bombyliids.

## Pantostomus fruticicolus n. sp.

Body predominantly reddish brown, even tending to be more reddish than brownish; proboscis, third antennal joints, head below, a very narrow central line on thorax, broadened at base of thorax and a faint, sometimes indistinct, spot on each side of disc of thorax anteriorly black; a submedial transverse dark brownish to black fascia on each side across apical part of tergites 2–6 not extending down the sides; the depressed discal part of tergite 1 sometimes also darkened; mesopleuron, especially along its upper part, also darkened; outer apical angles of frons, and sides of buccal rims yellowish; humeral angles pale yellowish; hind margins of tergites 2–6 discally yellowish, broadest along midline, where a broadly U-shaped ridge apically on tergites 2 and 3 especially is also yellowish though not smooth; hind margins of sternites not distinctly yellowish; legs reddish brownish, the apical rims of trochanters and apices of claws black; integument on the whole much duller than in gibbiventris, the

occiput, ocellar region and basal part of frons more coarsely punctured than in both the preceding species; puncturation on thorax also denser and coarser, the discal part of tergite I rather coarsely transversely wrinkled and rugose; foveate depression on each side of tergites 2–4 prominent, deep and conspicuous as in *pilosulus*, with a shallower and fainter one on each side of tergites 5 and 6 also, and with a slight depression on each side and more to side nearer base of tergites 2–4 in addition to the large submedial depressions; puncturation on abdomen above comparatively coarse, dense basally on the tergites, coarser and more scattered across apical parts, subrugose or scabrous and fairly dense on sides of tergites 2 and 3, distinctly finer, much denser and more scabrously rugulose on sides of 4–6 or 7, the puncturation across basal parts of tergites also subrugulose; integument of pleurae as in preceding species. *Vestiture* only in form of decumbent, depressed, scale-like or setae-like pile, without any erect hairs on thorax and legs, this pile on thorax also distinctly more scale-like; that on head above predominantly gleaming golden to deep golden yellowish; that

on thorax predominantly gleaming brassy to pale yellowish, with an admixture of reddish golden, with the pile in two submedial longitudinal bands, and a broader band on each side of thorax appearing paler, even pale sericeous vellowish to whitish in certain lights; pile on abdomen above gleaming brassy yellowish. to pale golden discally and more silvery or whitish on sides (where not denuded), this pile on abdomen also shorter and slightly less dense than in preceding two species; that on sides of tergite 1 more sericeous, more scale-like and distinctly shorter; that on legs predominantly gleaming brassy to golden yellowish; silvery tomentum or pruinescence on



Text-fig. 10. (a) Left antenna (outer side) of & Pantostomus fruticicolus n. sp. (b) Side view of hypopygium and ventral view of basal strut of & of same species.

sides of tergite 1, metapleural part and behind eyes less conspicuous than in two preceding species. Wings very distinct in being distinctly tinged yellowish brown to brownish to a little beyond level of middle cross vein in both sexes, this infuscation imperceptibly grading into the more hyaline apical part, especially in Q, the base, the costal cell and first and second basal cells slightly deeper yellowish brown, with the veins yellowish or yellowish reddish within the greater part of infuscation, dark brownish to blackish brown apically and posteriorly; hinder part of squamae whitish, and white-haired; halteres yellowish, the knobs

brown above. Head with the eyes in of separated above by a space slightly narrower than 2 times distance between outer margins of posterior ocelli; the space in \( \partial \text{ broader than in } \delta \), but bearing the same relationship to ocelli; ocellar ridge markedly prominent and, in & especially, continued posteriorly to occipital depression as a prominent ridge separated from eyes on each side by a very distinct and deepish groove, the ocellar ridge markedly high opposite posterior ocelli, the basal part of frons thus distinctly more steeply and more conspicuously declivous than in gibbiventris or pilosulus; frons with the anterior part more prominent, its outer apical angles, bounding the antennal fossae, more produced than in any other known species of this genus, its sides transversely wrinkled; antennae (text-fig. 10, a, of 3) with joint 1 also about, or a little more than, 2 times as long as transverse second joint, with joint 3 subequal in length to 1 and 2 combined, oval in shape, slightly more elongate in Q, subtruncate or bluntly rounded apically, and with a small stylar element on inner upper apical aspect; proboscis about 2 mm. long, very finely longitudinally striate at base below, transversely striate across middle and then again finely striate, the labella also very finely striate; palps also about as long as antennae. Hypopygium of 3 (text-fig. 10, b) with the apical part of basal part more rounded than in gibbiventris and pilosulus and with the lateral process on each side at base of basal strut (to the right below) also very distinctly visible as in pilosulus.

From 1 3 and 2 99 (types in the South African Museum).

Length of body: about 8-10 mm. Length of wing: about 6½-7 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This species may easily be separated from the two preceding species by its slightly larger size, its coarser puncturation, infuscated wings, absence of erect pubescence on front part of body and legs, steeper declivity from ocellar tubercle to transverse depression on frons and more produced outer apical angles of front part of frons. These specimens were taken resting on the dried twigs of Mesembryanthemums. When resting they keep the wings along sides of the abdomen and their reddish colour harmonizes with the dried reddish brown leaves and twigs of Mesembryanthemums.

# Pantostomus bullulatus n. sp.

This species is so close to *fruticicolus* that it differs practically only in details. With *fruticicolus* it agrees in the shape of the body, colour of the body, puncturation on the body above, absence of erect hairs, in having the same infuscated wings, and the same habit of sitting on the twigs of Mesembryanthemums. The chief differences are:

Vestiture on the ocellar ridge and greater part of frons denser and more in form of erect hairs, which also are predominantly black or darkish on ocellar ridge and in transverse frontal depression; pile on legs slightly longer and denser.

Head with the outer apical angles of anterior part of frons a little less produced, but roundly and shiningly convex or tumid on sides, thus more knob-like and not transversely wrinkled, with the declivity, from highest part of ocellar ridge to transverse frontal depression, more sloping and not so characteristically steep as in fruticicolus; antennal joint 3 more leaf-shaped in 3, more pointed apically, parallel-sided and narrower in 9 than in 3; proboscis distinctly more coarsely longitudinally striate on labial part. Wings very similar, but with the apical part of halteres and their knobs entirely ivory whitish above. Abdomen with the puncturation on sides of tergites 2 and 3 sparser, not dense and scabrous or rasplike, only dense at their extreme bases; that on tergites 4-6, though denser, finer and more close together than on tergites 2 and 3, also less scabrous, rasp-like or rugulose; smooth shining yellow hind margins of the tergites along middorsal line also comparatively broader, giving the appearance of a central row of slightly larger yellow spots; a distinct black line also present on each side across the extreme hind margins of the tergites; yellowish hind margins of sternites broader and more conspicuous. Hypopygium of & similar to that of fruticicolus, but the broadened part of basal strut distinctly slightly broader.

From 5 33 and 2 99 (types in the South African Museum).

Length of body: about  $7\frac{1}{2}-9\frac{1}{2}$  mm. Length of wing: about  $6\frac{1}{3}-7\frac{1}{3}$  mm.

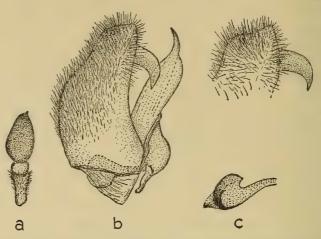
Locality: Namaqualand: Between Kamieskroon and Springbok (Mus. Exp., Oct. 1939) (types); Kamieskroon (Mus. Exp., Nov. 1936); Bowesdorp (Mus. Exp., Nov. 1931); Springbok (Lightfoot, Nov. 1890).

## Pantostomus capensis n. sp.

Body predominantly reddish brown to deep reddish brown; apical part or even greater part of antennal joint 3, proboscis, head below, sometimes a central line from front ocellus to depression on frons, cavity in head behind, a narrowish central stripe on thorax, broadened at base of thorax, sometimes an indistinct spot or indefinite mark on each side of thorax in front half, sometimes the smooth base of scutellum on each side and usually a broadish transverse fascia across apical part on sides of tergites 2-5 black or blackish; dark transverse marks on tergites very often more dark brownish than black and sometimes with a tendency for the central ridge (formed by the discal depression on each side) on abdomen above to be darkened, and also with a tendency for a dark central line to be present on venter; outer apical angles of front part of frons and sides of buccal cavity yellowish or even ochreous yellowish; humeral angles yellowish; hind margins of tergites discally shining yellowish, broadest centrally and there fused with the base of a broad U-shaped yellow mark on the tergites, which mark also marks a transverse U-shaped ridge on tergites 2-4 at least; hind margins of sternites also yellowish; legs predominantly yellowish to reddish brown like rest of body, the apices of trochanters and of claws black, and apical parts of tarsi sometimes darker brownish; integument punctured as

in other species; puncturation also coarser and sparser across apical parts of tergites, that on sides of tergites 2 and 3 in apical two-thirds at least also tending to be coarse and sparse, that on sides of 4-6 finer, denser and even subscabrous like that on basal halves and in depressions on tergites above; a deepish, broadish, slightly oblique or longitudinal, foveate depression on each side discally on tergites 2-4, each of which obliquely passes on each side into a shallower and less distinct basal depression; tergites 2-4 also appearing more humped and ridged centrally as in pilosulus and fruticicolus. Vestiture chiefly in form of decumbent or depressed, scale-like pile, with only shortish semi-erect hairs on head above, but without any longish erect hairs on thorax above or on legs as in gibbiventris and pilosulus; pile on head above not very dense, predominantly gleaming brassy to golden yellowish, usually with reddish golden gleams in certain lights; that on thorax above gleaming brassy to golden yellowish, with an admixture of deep reddish golden pile on each side discally, with the broadish band on each side and a submedial narrower one on each side tending to be more sericeous or silvery whitish in certain lights; hairs and pile on sides of tergite 1 gleaming sericeous or silvery whitish; pile on tergites above arranged as in other species, predominantly gleaming sericeous yellowish, brassy yellowish to golden yellowish discally, appearing more silvery on sides, more or less absent from apical parts of the tergites; pile on legs also predominantly gleaming sericeous to pale golden yellowish, but appearing more silvery in some specimens; silvery pruinescence as in other species. Wings predominantly vitreous hyaline, iridescent, with the base, basal half of costal cell and basal half of first basal cell in 3, and the costal cell, greater part of first basal cell, to a large extent also second basal cell and even extreme base of anal cell in Q faintly tinged subopaquely yellowish to yellowish brown to a variable extent; costal vein, basal half of third vein and greater part of fifth vein pale yellowish or reddish brownish, the rest of the veins dark reddish brownish to dark brown or blackish brown; halteres dirty yellowish to whitish, their knobs usually tending to be slightly or distinctly brownish above. Head with the interocular space in of comparatively narrowish, relatively narrower than in of of all the preceding species though also about 2 times distance between outer margins of posterior ocelli; space in ♀ much broader than in ♂, almost, quite, or even a little more than, 2 times distance between outer margins of posterior ocelli; ocellar ridge distinct, separated from inner margins of eyes by a groove-like depression, the ridge continued posteriorly, but sometimes becoming very faint, the highest point just in front of posterior ocelli, the basal half of frons gradually sloping down to frontal depression; frons with the outer apical angles, bounding antennal fossae, slightly prominent and produced, more produced than in gibbiventris and not tumidly rounded on sides as in the latter and in bullulatus; antennae (text-fig. 11, a) with joint 1 and 2 combined subequal to or a little shorter than 3, with joint 1 about, or a little less than, 2 times as long as 2, with 3 leaf-shaped in  $\beta$ , broader than in  $\mathcal{P}$ , tapering rapidly to a rather sharp point, slightly blunter in  $\mathcal{Q}$ , ending apically on inner upper aspect in a stylet; proboscis about  $1\frac{1}{2}-2$ 

mm. long, striated below; palps quite as long as or even slightly longer than antennae. Hypopygium of 3 (text-fig. 11, b) with the outer apical angles of basal part not very sharply pointed, the dorsum of basal part with fairly dense, but not very long, hairs; beaked apical joints rather rapidly curved down apically, laterally compressed; basal strut more or less ham-shaped as shown in figure, not deeply incised along the dorsal margin.



Text-fig. 11. (a) Left antenna of 3 Pantostomus capensis n. sp. (b) Side view of hypopygium of 3 of same species. (c) Side view of apical part of hypopygium of 3 Pantostomus melanotidus n. sp. (upper figure) and basal strut of same species (lower figure).

From 11 33 and 11 99 (types in the British Museum and paratypes in the South African Museum).

Length of body: about 5-8 mm. Length of wing: about 4-6 mm.

Locality: South-west Cape: Cape Town (Milnerton) (Turner, 14–28 Dec. 1925); Cape Point (Simmonds, 1–5 Nov. 1930); Stellenbosch (Brauns, Nov. and Dec. 1925 and 1926). Western Cape: Bulhoek between Clanwilliam and Klawer (Mus. Exp., Oct. 1950). Southern Karoo: Matjiesfontein (Turner, 14–27 Nov. 1928 and 1–18 Dec. 1928) (types); Matjiesfontein (Turner, 4 Dec. 1931); Montagu (Turner, 1–21 Oct. 1924). East Cape: Port Elizabeth (Ogilvie, 29 Oct. 1931).

There is no doubt that this species is slightly variable and if a larger series is available from still more localities, local varieties or races will be found.

#### Pantostomus melanotidus n. sp.

If it were not for the fact that the hypopygium of the 3 of this form shows certain distinct differences from that of capensis, these specimens could hardly be referred to a separate species. The specimens, however, show certain

distinct and constant features which separate them from capensis. Compared with the latter this species differs in having the transverse fascia across apical part on each side of tergites 2-5 (or 6) more conspicuously and constantly shining black in both sexes, and they are also relatively broader, and in addition the longitudinal central ridge (formed by the submedial depressions on sides of tergites 2-4) as well as the central stripe on tergites 5 and 6, are more constantly black or very dark in both sexes; puncturation across apical parts of tergites apparently slightly coarser and denser and even more scabrous; pleurae and legs on the whole more dark brownish, and the integument of thorax and abdomen above also more brownish than reddish; veins in wings paler, also less yellowish, more brownish; pile on body above more uniformly gleaming brassy yellowish, especially on abdomen above; antennal joint 3 usually distinctly blunter apically, appearing more truncated, ending apically on inner upper aspect in a stylet and on lower aspect in a slight, but distinct, prominence, giving the joint a slight bifid appearance. Hypopygium of & differs from that of capensis in having the outer apical margin of basal part (text-fig. 11, c, upper figure) distinctly more sinuous and more angularly pointed apically, and in having the basal strut (text-fig. 11, c, lower figure) distinctly incised along its dorsal margin and slightly produced at its end.

From 34 33 and 9 9 (types and paratypes in the South African Museum and a paratype in the Commonwealth Institute).

Length of body: about  $4-7\frac{2}{3}$  mm. Length of wing: about  $3\frac{1}{2}-6$  mm.

Locality: Koup Karoo: Teekloof in the Beaufort West Dist. (Mus. Exp., Nov. 1935 (types); Koup Siding (Mus. Exp., Nov. 1939); Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Meiringspoort (Mus. Exp., Oct. 1937). Little Karoo: Schoemanspoort (Mus. Exp., Oct. 1938); Vanwyksdorp (Mus. Exp., Oct. 1937); Touws River (Ladismith-Montagu) (Mus. Exp., Oct. 1937); Oudtshoorn-Zebra (Mus. Exp., Oct. 1951). Eastern Karoo: Graaff-Reinet (Ogilvie, 24–27 Oct. 1931).

## Pantostomus tinctellipennis n. sp.

This species very closely resembles capensis, but as it differs in a few constant characters, which in this uniform genus must be considered as of specific value, it cannot be considered as a variety of capensis. Compared with the latter it differs in having a distinctly more reddish body, with the broadly U-shaped preapical yellow marks, apart from the broad yellow hind margins of tergites in middle discally, less conspicuous. Vestiture with the hairs on ocellar ridge and frons distinctly longer, denser and more shaggy; hairs on femora, especially on outer and upper aspects, and those on tibiae distinctly longer and denser, the legs appearing more hirsute; decumbent scale-like pile on thorax, scutellum and abdomen above also relatively denser and longer. Wings distinctly, more conspicuously and extensively tinged yellowish brownish to brownish in both

sexes, much like those of *fruticicolus* and *bullulatus*, in  $\Im$  with the base, base of costal cell, greater part of first basal cell, second basal cell and even bases of discoidal and fourth posterior cells tinged brownish, in  $\Im$  the greater part of wings to, or even beyond, middle cross vein tinged and even apical part not hyaline, but imperceptibly grading into the darker tinged part.

In most other respects, such as the nature of the puncturation and the colour of the pile it is very similar to *capensis*. Even the hypopygium of the 3 does not differ structurally from that of the 3 of *capensis*, though the fine hairs on the basal part appear to be less dense and less conspicuous.

From 5 33 and 13 99 (types in the British Museum and paratypes in the South African Museum).

Length of body: about  $5-7\frac{1}{2}$  mm. Length of wing: about  $4\frac{1}{2}-5\frac{1}{2}$  mm.

Locality: Southern Karoo: Ceres (Turner, Jan. 1921 and Dec. 1920) (types); Witzenberg Valley (Turner, 19 Jan. 1921); upper sources of the Olifants River in Ceres Div. (Mus. Exp., Dec. 1949).

This species appears to be a mountainous form, occurring at altitudes of 1,500-3,000 ft.

#### Pantostomus psammophilus n. sp.

Body predominantly reddish brown to deep reddish brown; front half or part of frons and buccal part paler, more yellowish; pleurae more brownish; humeral angles, anterior and posterior spiracular openings on pleurae, hind margins of tergites discally, hinder parts of tergites above and to a certain extent hind margins of sternites ivory yellow; upper margins and apical part to a variable extent of antennal joint 3, proboscis, head below, a central line on thorax above, broadened spot-like anteriorly and posteriorly, a basal, central spot on tergite 2, entire sides of 2 and 3 and their hind margins a little way up, broad hind margins on sides of tergites 4 and 5, and an indistinct medial line or fascia on venter black; hind trochanters, upper part of hind femora and apical parts of tarsi slightly darkened. Vestiture with the hairs on ocellar tubercle and frons rather dense and longish, shining bright, pale brassy yellowish, some on tubercle darker, more brownish to black; scaling and pile on rest of body disposed and coloured as in capensis and other species; that on thorax as in capensis, but more pale brassy on abdomen above. Wings almost entirely hyaline and even in 9 the base, base of costal cell and basal half of first basal cell scarcely tinged yellowish, only showing a slight opacity; veins yellowish; halteres pale yellowish white. Head with the transverse depression across from distinctly less deep than in preceding forms; interocular space in Q on vertex about, or a little less than, 2 times width of ocellar tubercle; vertex as in capensis, with a groove on each side of tubercle and its posterior ridge-like prolongation, the tubercle, however, lower; antennal joint 3 leaf-shaped, slightly more rounded along lower margin, narrowed and pointed apically as

in capensis. Abdomen differing from all the preceding non-hirsute species in having the submedial, preapical, foveate depression on each side medially of tergites 2–4 distinctly shallower, more rounded and situated more transversely, the central space between them dorsally only slightly convex or hump-like, not markedly elongate and ridge-like as in capensis and other non-hirsute forms described in the preceding pages; puncturation on sides of tergites 2 and 3 not dense in apical half, that on sides of rest dense and subscabrous. Legs with rather dense and longish, very pale, brassy, almost subsilvery hairs on femora and tibiae, distinctly longer and denser than in capensis and melanotidus, more like that of tinctellipennis.

From 2 PP (type in the South African Museum).

Length of body: about  $5\frac{1}{2}$ -8 mm. Length of wing: about  $4\frac{1}{2}$ -6 mm.

Locality: West Cape: Between Leipoldtville and Elands Bay (Mus. Exp., Nov. 1948). The smaller and shallower and slightly transversely situated preapical foveate depressions on medial tergites above which do not cause a distinct and definite, longitudinal ridge-like, raised part between them, easily distinguish this species from all the preceding non-hirsute species. It can only be confused with the next and very similar Rhodesian species from which it differs in the characters listed under that species. It was caught sitting on sand.

### Pantostomus mallochi n. sp.

(Syn. = gibbiventris Malloch, nec Bezzi, p. 119, Stylops, i, figs. 2 and 2A, 1932.)

As was stated under gibbiventris Bezz., Malloch mistook some Rhodesian representatives of Pantostomus for gibbiventris s. str. One of specimen from Rhodesia which was so labelled by Malloch is in the collections before me. There is no doubt that this species is entirely different from the true gibbiventris of Bezzi. According to Malloch's description and the labelled specimen before me, it is also evident that this species differs from all the other forms described in this memoir. I propose to name this northern form after Malloch. From gibbiventris it differs in not having a very broad, central, black stripe on the thorax and on tergites 1 and 2; no dense, fine hairs, in addition to the decumbent scale-like pile on head, thorax and scutellum above and on legs, distinctly shorter and less dense scaling or pile on rest of body; distinct, more conspicuous, larger and more transversely situated preapical depressions on tergites 2-4, and less uniform puncturation on abdomen above; a narrower interocular space in both sexes; a more distinct ocellar ridge which is separated from inner margins of eyes by a groove-like depression on each side; distinctly more produced, more flattened and not knob-like, outer apical angles of front part of frons; slightly more tapering third antennal joints, especially in 3; slightly shorter palps; and a slightly different type of hypopygium in the 3 (cf. text-figs. 8, b) and 12).

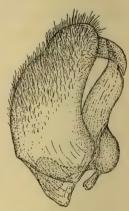
The only species which it very closely resembles is the preceding *psammophilus* from the Cape. From the latter it may, however, at once be distinguished by the much shorter and less dense hairs on femora and tibiae, the sparser and relatively shorter scaling on thorax and abdomen above, narrower and less extensive ivory yellowish across hinder parts of tergites; and the denser and finer puncturation on sides of tergites 2 and 3.

It may also be confused with capensis, from which, however, it differs in having the preapical foveate depressions on abdomen above comparatively smaller

and situated more transversely, the dorsum between these not markedly longitudinally ridge-like as in *capensis*; puncturation on sides of tergites 2 and 3 distinctly denser and that on basal half at least more subscabrous and that on sides of tergites 4–6 apparently finer and more scabrous; black fascia across apical parts of tergites on sides also more extensive and more conspicuous; upper part of mesopleuron also darker; and according to Malloch even the femora of some specimens are darkened. *Hypopygium* of 3 (text-fig. 12) differs from that of *capensis* in having slightly shorter and less conspicuous hairs on basal part and in having the outer apical angles of basal part more distinctly rounded.

Type of  $\delta$  in the Rhodesian Museum, paratype in the Transvaal Museum.

Length of body: about 5-9 mm. Length of wing: about 4\frac{1}{2}-6 mm.



Text-fig. 12. Side view of hypopygium of & Pantostomus mallochi n. sp.

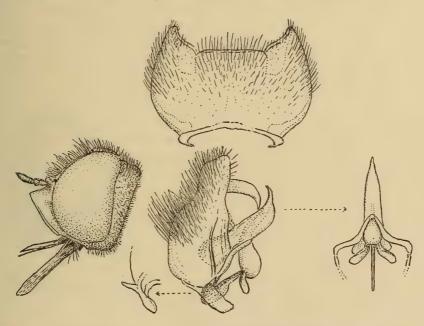
Locality: Southern Rhodesia: Redbank (Stevenson, 1 Sept. 1926) (type); Mulungwane Mts. (12 Sept. 1924) (after Malloch). North Transvaal: Northeast Zoutpansberg (Breyer, 7 Aug. 1916).

# Gen. Tomomyza Wied.

(Wiedemann, p. 322 and pl. iii, figs. 7a-e, Aussereurop. Zweifl. Ins., i, 1828; Bezzi, pp. 5 and 474, Ann. S. Afr. Mus., xviii, 1921; Bezzi, pp. 79 and 80, Broteria (Ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 27, The Bombyliidae of the Ethiopian Region, 1924.)

In 1828 Wiedemann described and figured this genus and its genotype species anthracoides. To this genus Bezzi subsequently referred three other species which he never described properly, but merely distinguished in a synoptic key or in very short diagnostic notes (see Broteria). In addition to these three species and Wiedemann's anthracoides there are seven undescribed species in the collections before me. As no one has ever described this genus satisfactorily and as its characters, especially the wing-characters and vestiture, are very variable, a fuller description, based on all the known South African species, is given here:

Body slightly elongate as in Pantostomus, either wasp-like, Syrphid-like or Apid-like (Ceratina) in appearance, predominantly dark or black, but sometimes with reddish, reddish brown or brownish on extreme sides of thorax, on scutellum and on pleurae; facial region sometimes yellowish, yellowish brownish to brown; hind margins of tergites in most of the known species either narrowly yellowish, ivory yellowish or bone yellow, or at least yellowish medially along middorsal line; legs entirely black or yellowish or reddish in part. Vestiture either in form of fine, relatively dense, erect hairs on head, thorax and scutellum

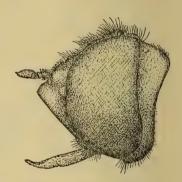


Text-fig. 13. Upper figure: last sternite of & Tomomyza anthracoides Wied. Lower left-hand figure: side view of head of & of same species. Lower middle figure: side view of hypopygium of & of same species. Lower right-hand figure: ventral view of aedeagal apparatus of & of same species.

above and finer ones on abdomen above, or only with erect hairs on head, or in most species with a decumbent or depressed scale-like pile or scales on thorax, scutellum and abdomen, very much like that of *Pantostomus*; pile or hair-like scaling on sides of thorax, scutellum and tergite I usually longer; that on abdomen in most forms very fine; very fine, silvery, microscopic pile or pruinescence usually present on sides of face, along inner margins of eyes on frons, on sides of head behind eyes, on hinder part of metapleural parts (above hind coxae) and in some species also along notopleural part and even on pleurae, sides of tergite I, venter and on coxae to a variable extent; metanotal tuft usually absent. *Head* (text-figs. 13 and 14) large in relation to body, subglobular, slightly broader than long or even longer than broad, much broader than thorax; occiput as in *Pantostomus*, the occipital lobes also touching

and postverticial fovea distinct; eyes large, their hind margin scarcely or only very slightly sinuate, not bisected, separated above in both sexes, but more narrowly in  $\delta \delta$ ; interocular space, however, variable in width, but usually not more than 3 times width of ocellar tubercle; ocelli with the posterior pair usually smaller and usually more elongated than anterior one, the latter some distance in front of the former, the three ocelli either on a slight elevation, more distinct in  $\delta \delta$ , or the posterior pair flank a slight elevation or pimple-like tubercle, occasionally prominent or raised and longitudinally ridge-like as in *Pantostomus*, and posteriorly not, or also occasionally, continued as a central ridge; frons as in *Pantostomus*, but sometimes comparatively broadish, either smooth or with fine, acciular puncturation or even with fine rugulose sculpture, distinctly less transversely depressed across middle than in *Pantostomus*, and the

outer apical angles, bounding the antennal fossae, in most forms not so angularly prominent or produced, rarely dentate or markedly knob-like, the apex of frons falling short, or far short, of the conically pointed apex of face; facial part in front of antennal fossae usually distinctly very much longer and more projecting than in Pantostomus, the apex of facial cone thus appearing farther forward, this part of face and sides smooth or microscopically sculptured, but always shining; genae absent and fossa on sides of facial region absent or only feebly indicated, to a lesser extent than in Pantostomus; buccal cavity well developed, deep, capacious, its rims thin and sharp; proboscis short, stoutish, scarcely or only slightly projecting beyond apex of buccal



Text-fig. 14. Side view of head of  $\[ \varphi \]$  Tomomyza pictipennis Bezz.

cavity, its lower part usually finely striate or striolate, the labella well developed, pointed apically; palps slender, rather long, longer than antennae, slightly broadened apically, a small apical joint scarcely separately discernible, the lower surface of palps finely transversely wrinkled or striated and with slender hairs below; antennae (text-figs. 16, 18, 22 and 24) shortish, inserted in sockets, with joint 1 slightly longer and often thicker than 2, joint 3 the longest, usually broadish, ovate, pea-pod-shaped or leaf-shaped, usually somewhat blunt apically, sometimes subtruncate, or even pointed, usually broadest near base, tending to be narrower in  $\varphi\varphi$ , with the inner surface flattened or even broadly sub-groove-like depressed, ending apically in an upper and sometimes also a distinct lower process, thus giving the apex a slight bifid appearance. Thorax either slightly broader than long or longer than broad; integument shining or sometimes dull; upper surface with fine acicular puncturation or finely ruguloso-punctate or sometimes finely punctured; mesopleuron either distinctly convex or tumid or flat; greater part of pleurae bare and shining, but

upper part of mesopleuron and the metapleural parts more or less sculptured like thorax above, and the upper part of sternopleuron, hinder part of pteropleuron and to a lesser extent upper part of hypopleuron either finely striolate, striate or even rugulose to a variable extent; scutellum well developed, sculptured like thorax. Wings (text-figs. 15, 17 and 21) vitreous hyaline, hyaline, greyish hyaline, tinged or infuscated, or even spotted to a variable extent; basal comb wanting; alula wanting or very vestigial; two, three or even more submarginal cells may be present, more often only two, but in at least two known species apical part of wings is unstable and three or four submarginal cells are formed by supernumerary cross veins (cf. text-figs. 15 and 17); four posterior cells present and all open; second vein originating near base of third, recurved or looped (sometimes markedly so) at its end; vein between submarginal cells in species with only two submarginal cells usually provided with a stump at its bent-down base; middle cross vein beyond middle of discoidal cell; vein between discoidal and third posterior cells either very sinuous or S-curved or only slightly sinuous; squamae narrow; halteres as in Pantostomus. Abdomen either broad, ovate, dorso-ventrally compressed and excavate below, or more often cylindrical, sometimes more or less laterally compressed, without very distinct, conspicuous, deep, preapical and submedial, foveate depressions on each side of tergites 2-4 (or 5) as in Pantostomus, the middorsal region thus not longitudinally raised or ridge-like, sometimes with the tergites transversely convex; upper surface shiny or duller, either with relatively coarse puncturation or with very fine, dense, leathery, setiferous puncturation; tergite I usually slightly transversely depressed basally and more coarsely sculptured; last sternite in 33 (cf. text-fig. 13, upper figure) with its sides produced into a lobe or tongue-like lobe. Legs without any spines on femora, either with dense and longish hairs or shorter hairs and fine scaling; tibiae with short, stiffish, spicule-like hairs or with only feeble and inconspicuous, or even without any, spicules; front tarsi not modified; claws well developed, slender, curved down apically; pulvilli long in both sexes. Hypopygium of 33 (text-figs. 13, 16, 18, 19, 20, 22, 23 and 24) also situated on the ventral aspect of abdomen as in Pantostomus, the last sternite of which is dorsal in position; basal part of hypopygium also composed of a single and undivided part, usually covered with fairly dense hair, ending basally on each side in a sort of process or lobe and in two known species at least also with an outwardly projecting process at base of this lobe, with the outer apical angles of basal part usually slightly produced and rounded; beaked apical joints usually curved claw-shaped; aedeagus shaped much as in Pantostomus, but sometimes with the apex much recurved (cf. text-fig. 24).

This genus and *Pantostomus* together constitute a distinct and well-defined group which markedly differs from the *Henica* and *Nomalonia*-group and in essential features also from the next group. The genotype species of this genus is *Tomomyza anthracoides* Wied. The species belonging to this genus can be more or less roughly divided into three groups each of which differs from the other

in certain characters which suggest a separate generic status, but as some forms are transitional and show overlapping characters, generic homogeneity for any one of these groups cannot be established without some confusion. At present it is more convenient to consider the genus *Tomomyza* as a composite and variable genus. The three sections are evident from the following key to the known species:

- 1. (a) Body more bee-like (Ceratina) in appearance, the abdomen broad, ovate, dorso-ventrally depressed, but convex above and excavated below, with dense and coarse puncturation, without any ivory yellowish hind margins or spots along mid-dorsal line above; thorax broader than long, with coarser and more acicular puncturation; mesopleuron distinctly more convex or tumid; pleurae with more distinct or even coarse striation; vestiture in form of longer and denser erect hairs on head, thorax, scutellum and entire abdomen above, decumbent scales being entirely absent and silvery pruinescence much less, confined only to head and above hind coxae; wings normally with three submarginal cells and usually tinged or infuscated; vein between discoidal and third posterior cells more distinctly S-curved and the latter cell much contorted; legs densely and conspicuously hairy; antennal joint 3 narrower, less leaf-shaped; base of shell-like basal parts of hypopygium also with an outwardly projecting spine-like process at base of posterior prolongation.
  - (b) Body more wasp-like in appearance, the abdomen more cylindrical or even laterally compressed, with only fine, setiferous puncturation and usually with some ivoryvellowish across hind margins of some of the middle tergites or most of the tergites, either as central spots or discal fasciae; thorax longer than broad, with minute setiferous or dull, fine rugulose puncturation; mesopleuron not or scarcely convex, more often flat; pleurae smoother or with much finer striation; vestiture in form of fine, erect hairs on head and sometimes also on other parts above, extensive decumbent pile or scaling on body above and on abdomen and more extensive silvery pruinescence on head, sides of thorax and on pleurae; wings normally with only two submarginal cells and, if with more than two, the condition is inconstant and due to unstable supernumerary cross veins in apical cells and the wings in such cases usually spotted; vein between discoidal and third posterior cells only feebly sinuous and, if very sinuous, wings are spotted; third posterior cell usually not or less contorted; legs finely scaled or only finely or inconspicuously hairy; antennal joint 3 broader, more compressed and leaf-shaped; base of shell-like basal parts without an outwardly projecting process at base of posterior prolongation.
- 2. (a) Scutellum entirely black; hairs on head above with numerous white ones intermixed or predominantly white, those on thorax and scutellum above and on abdomen above, especially in a series of tufts along mid-dorsal line and across bases of tergites on sides, on last two tergites, on basal half of venter and on basal halves of hind femora white or gleaming silvery whitish; ovipositorial brush of φ pale; puncturation on abdomen above on the whole distinctly coarser; upper part of sternopleuron, hinder half of pteropleuron and to a lesser extent hypopleuron more distinctly and more coarsely longitudinally rugulose or rugose; wings less darkly and not uniformly tinged smoky brownish throughout, the apical and hinder parts much clearer than costal half, especially in δ; knobs of halteres whitish.
- 3. (a) Wings infuscated or infused with smoky brownish, brownish to dark brownish to a greater or lesser extent in anterior part or even beyond middle and with the apical

and hinder parts spotted (cf. text-figs. 15 and 17); three or even four submarginal cells present and formed by supernumerary cross veins in apical cells, the third or fourth cell at apex usually small; vein between discoidal and third posterior cells usually more S-curved; vein 2 much recurved or looped at its end. . . 4 (Section 2)

- 4. (a) Facial cone less prominent, formed mainly by the conical face, the dorsum of which is visible some distance in front of antennae and the sockets of the latter thus situated farther backwards; scutellum smaller, more semicircular, less convex; wings (textfig. 15) with more uniform and extensive brownish infuscation in anterior half or even beyond, including basal cells; more infusions and spots present on cross veins and along apical and posterior veins, near ends of posterior veins and at apices of anal and axillary cells; three submarginal cells usually present; vein 2 less deeply looped at end; middle cross vein very much beyond middle of discoidal cell; vein between discoidal and third posterior cells more zigzag and provided with a stump projecting into third posterior cell; abdomen without faint indications of discal depressions and without Λ-shaped patches of silvery pile; legs relatively shorter, the hind femora yellowish to beyond middle and hind tibiae with a broad medial yellowish ring; pulvilli much narrower; smaller form, about 5½-9 mm. long and a wing about 4-7 mm. long.
  - (b) Facial cone more prominent, Pantostomid-like, formed by apex of face and to a great extent also by front part of frons and antennal sockets, the dorsum of face in front of antennae very short and antennal sockets far forward; scutellum larger, more triangular, more convex; wings (text-fig. 17) with a more broken up and less extensive smoky brownish infusion in anterior part, the greater part of costal and marginal cells and apical parts of basal cells clear or less tinged; infusions and spots on cross veins and along apical and posterior veins smaller and fewer, without any spots along posterior veins and at apices of anal and axillary cells; four submarginal cells present, formed by cross veins and connecting stumps in apical part; vein 2 markedly bent upon itself apically; middle cross vein a little beyond middle of discoidal cell; vein between discoidal and third posterior cells merely sinuous, without a stump; abdomen with faint indications of slight discal depressions on tergites 2 and 3 and with Λ-shaped discal patches of faint silvery pile; legs comparatively long, the hind femora yellowish only at bases, and hind tibiae more extensively yellowish, only base below and apices black; pulvilli broader, more leaf-shaped; slightly larger form, about 11 mm. long, with a wing about 8 mm. long. & pantostomoides n. sp. (p. 82)
- 5. (a) Wings with the axillary lobe longer, more or normally developed and broader, the anal cell distinctly narrowed apically or subacute and sometimes, even though narrowly open, very acute apically; middle cross vein much or very much beyond middle of discoidal cell; second vein less recurved apically; costal cell longer, extending much beyond middle of wing; erect hairs and scaling or pile, as well as pruinescence, on head, thorax and scutellum above more developed, denser, longer; abdomen with the ivory yellowish hind margins discally or dorsally along midline more extensive, either as larger spots or distinct yellow hind margins; facial cone anterior to antennal fossae longer or even markedly long.
  - (b) Wings with the axillary lobe distinctly much shorter, more reduced and narrower, the anal cell narrower, not narrowed apically, very broadly open; middle cross vein nearer middle, only a very little beyond middle of discoidal cell; second vein markedly and much more recurved or looped apically; costal cell shorter, extending only a little beyond middle of wing; hairs and pile and also pruinescence on head, thorax and scutellum above distinctly less developed, sparser and shorter; abdomen very much compressed, with much smaller central yellowish spots apically on tergites 2-4 and with a more distinct whitish pubescent line across hind margins of 2 and 3 on sides only; facial cone anterior to antennal fossae distinctly shorter.

- 6. (a) Interocular space on vertex in both sexes distinctly much broader, much broader than ocellar tubercle; front ocellus, though removed from posterior ones, not separated from them by a distinct transverse depression; occiput longer, much longer than antennal joint 3; head and body above, though often with fine microsculpture, more shining; thorax, scutellum and abdomen above not dull and without transverse rugulose sculpture; wings hyaline, vitreous hyaline or only feebly greyish; hairs on head, thorax and scutellum above slightly longer; sides of face and legs either yellowish to a variable extent or dark or black; spots or hind margins on tergites discally yellowish or more ivory yellowish.
  - (b) Interocular space on vertex at narrowest part, even in ♀, very much narrower, in ♀ only about as broad as ocellar tubercle; front ocellus separated from posterior ones by a transverse depression or gap, the posterior ocelli on sides of a rather conspicuous rounded tubercle; occiput much shorter, only about or only a little longer than antennal joint 3; frons and facial part, though shining, distinctly finely rugulose; occiput, thorax and scutellum above dull due to distinct transverse rugulose sculpture and abdomen above also dull due to rugulose or leathery sculpture; wings distinctly and uniformly tinged smoky greyish throughout; hairs on head above distinctly shorter and absent or very minute on thorax and scutellum; an obscure spot on sides of facial part, humeral angles, middle part of pleurae, hind margins of or central spots on tergites, last two tergites, venter in part, coxae and legs more reddish or yellowish red.

    ♀ stenolopha n. sp. (p. 85)
- 7. (a) Legs much paler, either predominantly yellowish or with much yellow; humeral angles yellowish or at least yellowish brownish; pleural parts also paler brownish or even yellowish brownish; hind margins of tergites distinctly more broadly yellowish above along mid-dorsal line, giving the appearance of a longitudinal row of triangular spots; conical facial region also more extensively yellowish on sides and, if not, legs at least not uniformly blackish or dark; hairs on thorax and scutellum dark or black; fine scale-like pile on abdomen above also very dark or blackish; abdomen tending to be more distinctly laterally compressed.
  - (b) Legs predominantly very dark blackish brown or black; humeral angles and entire thorax and scutellum above black; pleurae also relatively much darker; hind margins of tergites more narrowly and more ring-like ivory whitish or yellowish, the yellow extending right down the sides and, if a central row of spots are present, the body and legs predominantly black; conical facial region predominantly black; hairs, if present on thorax and scutellum, whitish; fine pile discally along mid-dorsal line of abdomen gleaming distinctly silvery whitish; abdomen tending to be more cylindrical. . 10
- 8. (a) Greater part of sides of conical facial region along rim of buccal cavity yellowish; humeral angles paler yellowish and pleurae also paler, more chestnut brownish or yellowish brownish; legs on the whole also paler, the pale parts more distinctly yellowish; fine decumbent pile on thorax above gleaming more distinctly golden or reddish golden in certain lights.
  - (b) Greater part of facial region shining black, only a longitudinal spot near lower part on each side yellowish; humeral angles more brownish and pleurae also darker, more dark castaneous or piceous brownish; legs also tending to be distinctly darker, deeper castaneous brownish, the upper surfaces of femora and tibiae appearing much darker, more blackish; fine decumbent pile on disc of thorax appearing dark, not gleaming reddish golden to the same extent when viewed from obliquely behind.

 $3 \circ philoxera$  n. sp. (p. 87)

- 9. (a) Sides of thorax and scutellum not or scarcely yellowish brownish, the scutellum entirely black; hind margins of tergites or the central row of triangular spots on abdomen above usually paler, more ivory whitish; legs with distinct, longish, fine hairs in addition to the scaling.
  - (b) Sides of thorax and especially the broadish sides or lateral basal angles of scutellum distinctly yellowish brownish; central row of triangular spots on abdomen above usually distinctly more ochreous to orange yellowish; legs without any longish hairs, only covered with scaling or very short pile. . . ♂♀ karooana n. sp. (p. 88)

- 10. (a) Integument of frons, facial region and body not conspicuously shining or polished in appearance, that of thorax and scutellum above dull and microscopically rugulose; pleural parts with silvery tomentum and thus duller; facial cone also duller, with fine pile on sides; vestiture on thorax and scutellum in form of fine decumbent and scale-like pile only; fine pile in broadish patches along mid-dorsal part of abdomen in 3 brilliantly gleaming silvery whitish; frons with the outer apical angles, bounding antennal sockets, distinctly less tumid or knob-like, not produced; interocular space on vertex in both sexes relatively narrower, and inner margins of eyes parallel from vertex to level of front ocellus; antennal joint 3 distinctly longer and, even in 3, not broadly leaf-shaped, the apex blunter and the two processes discernible; knobs of halteres brownish above; abdomen with tergite 1 longer, more developed, scarcely overlapped medially by scutellum, with the ivory whitish hind margins broadened centrally above to form a central row of smallish spots; legs more dark blackish brown, their scaling appearing pale or yellowish whitish in certain lights.
  - ♂♀ barbatula Bezz. (p. 90) (b) Integument of frons, facial region and entire body above and below conspicuously shining, highly polished in appearance, that of thorax and scutellum above only finely and sparsely punctured, but also polished; pleurae brilliantly shining, without silvery tomentum; facial cone also shining and without pile around the rims apically; vestiture on thorax and scutellum in form of fine, whitish or silvery-gleaming hairs; fine pile on abdomen above dark or blackish, not conspicuously silvery whitish; frons with the outer apical angles, bounding antennal sockets, distinctly more tumid, shining, knob-like and slightly produced; interocular space on vertex in 33 relatively broader and inner margins of eyes slightly diverging posteriorly, the narrowest part being at about level of front ocellus; antennal joint 3 (text-fig. 24, a) distinctly shorter and, even in  $\mathcal{Q}\mathcal{Q}$ , broadly leaf-shaped, tapering to a sharp point; knobs of halteres whitish; abdomen with tergite I shorter and medially overlapped by scutellum, with the ivory whitish hind margins not broadened spot-like discally; legs black, their fine pile and scaling very dark or blackish. . . . . . . .
- (a) Smaller form, about 4⅓-5 mm. long, with a wing-length of about 3½-4 mm.; hair on thorax and scutellum distinctly longer, more conspicuous; outer apical part of frons tending to be less dilated or tumid.
   ♂♀ nitidula n. sp. (p. 92)
  - (b) Larger form, about 6 mm. long, with a wing-length of about 4½ mm.; hair on thorax and scutellum distinctly shorter, less conspicuous; outer apical part of frons, in ♂ at least, tending to be more turnidly prominent.

& slight var. of nitidula n. sp. (p. 93)

## Tomomyza anthracoides Wied.

(Wiedemann, p. 323 and pl. iii, figs. 7 a-e, Aussereurop. Zweifl. Ins., i, 1882; Bezzi, p. 79, Broteria (Ser. Zool.), xx, fasc. ii, 1922.)

This species of Wiedemann does not appear to be common in collections. The only specimens which I take to represent it are in the South African Museum. Wiedemann's description of the species is very unsatisfactory and his figures are as misleading. Macquart's short reference to this species and his illustration of the wing (p. 52, Dipt. Exot., ii, 1840, and on tab. 16, fig. 9) are not helpful either. Two important and characteristic features of this species, however, distinguish it from all other known South African forms and, as these are specially mentioned by Wiedemann in his short description, I have no doubt in referring the specimens before me to Wiedemann's original anthracoides. It is characterized as follows:

Body and legs entirely black; proboscis and palps and to a certain extent the knees more brownish. Vestiture with the hairs on ocellar region and frons com-

posed of white and dark ones; rest of hair on occiput, on thorax and scutellum, metapleurae, sides of tergite 1, broadly and conspicuously across bases (especially sides) of 2-5, in central discal patches or tufts on 2-5, on more or less entire 6, across hind margin of 7, on more or less basal half of venter and on basal halves of hind femora white or gleaming silvery; brush of Q very pale sericeous yellowish; hairs on mesopleuron, the very much finer or minute ones on sides of tergites 2-5 (not occupied by the slightly longer whitish ones) across bases, intermixed ones on inflexed sides of abdomen, on venter posteriorly and on femora and tibiae dark or appearing brownish in certain lights; silvery pruinescence present narrowly on each side of front part of frons, as a spot on each side of facial part above genal grooves, in a spot or streak behind eyes, in a narrow streak in front of wing-bases and on pleural plate above hind coxae; a small tuft of flattened silvery-gleaming hair-like scales also present in front of wing-bases. Wings in Q infuscated smoky brownish, the apical and hinder parts becoming imperceptibly less darkly infuscated and the basal and costal half darker brownish; in & the basal and costal parts to basal half of first basal cell dark as in  $\mathcal{Q}$ , but the apical and hinder parts less darkly tinged and appearing clearer than in  $\mathcal{Q}$ ; halteres whitish. Head (text-fig. 13) with the interocular space on vertex in  $32\frac{3}{4}$  times width of ocellar tubercle, in 9 nearly, to even a little more than, 3 times width of tubercle; ocellar tubercle narrower in 3 than in  $\mathcal{Q}$ ; from with a central line-like impression, more evident in  $\mathcal{Q}$ , the frons ending apically on each side above antennal sockets in a blunt, dentate prominence; antennae with joint 1 slightly longer than 2, with 3 rapidly narrowed apically, sometimes sub-spindle-shaped, but much more narrowed apically than basally, not or scarcely broader than 2 (side view). Thorax with distinct acicular puncturation more or less in streaks, separated by less punctured or impunctate streaks; scutellum also with acicular puncturation, but with a central impunctate or smoothish streak; upper part of sternopleuron, hinder half of pteropleuron and to a lesser extent upper part of hypopleuron rather coarsely longitudinally rugulose or striate; mesopleuron more convex or tumid than in other species. Abdomen rather densely and fairly coarsely punctured above, denser and coarser discally along middle, more transversely rugulose discally across hind parts of tergites, with the basal part of tergite 1 more coarsely rugulose in depression. Hypopygium of & (text-fig. 13, lower figures on right) with a distinct, spine-like process projecting outwards at base of posterior prolongation of shell-like basal parts (see to left of lower middle figure); hairs on basal parts rather long and dense.

In the South African Museum. Length of body: about 6-8 mm. Length of wing: about 5-6½ mm.

Locality: West Cape: Between Leipoldtville and Elands Bay (Mus. Exp., Oct. 1947). These insects were caught on flowers of Carpobrotus edulis and C. acinaciformis and also resting on the sand between these plants.

#### Tomomyza guillarmodi n. sp.

A closely related species of *Tomomyza* in the collections before me differs from *anthracoides* in the following respects:

Body on the whole more shiny, also entirely black, but the scutellum is brickred with a broadish, central, black band or spot; postalar calli and the small ledge-like platelet in front of wing-bases also reddish; puncturation on scutellum less coarse, that on abdomen above distinctly finer and on sides of tergites 4 and 5 denser; upper part of mesopleuron with finer and less coarse sculpture; upper part of sternopleuron and hinder half of pteropleuron with much finer striae. Vestiture with all the hairs on head and body above and on legs entirely dark or black, excepting only the gleaming whitish or pale ones on metapleurae, sides of tergite 1, at base of venter and some on hind coxae; hairs on abdomen also relatively shorter, without any tufts, either dark or silvery, on discal parts of tergites. Wings distinctly darker, more uniformly smoky brownish throughout in both sexes, the almost imperceptibly less darkly tinged apical and hinder parts still more tinged and darker than in anthracoides; apical part of second vein even more deeply recurved; knobs of halteres brown above. Head with the dentate prominence apically above antennal sockets slightly broader and less sharp; antennal joint 3 tending to be more pea-pod-shaped. Hypopygium of of very similar to that of anthracoides (cf. text-fig. 13, lower figures on right), but differs in having relatively less dense and shorter hairs on shell-like basal parts, a relatively shorter posterior prolongation of these parts, and a basal strut which has no indentation or emargination in its dorsal margin.

From 3 33 and 2 99 (types in the South African Museum).

Length of body: about 6-8 mm. Length of wing: about 5-7 mm.

Locality: Little Karoo: Ladismith (Guillarmod, Sept. 1948).

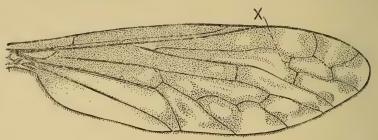
## Tomomyza pictipennis Bezz.

(Bezzi, p. 474, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 80, Broteria (Ser. Zool.), xx, fasc., ii, 1922.)

This species was never fully or properly described by Bezzi and it is almost impossible to identify it from the short notes and references given by Bezzi. The chief characters of this interesting and easily recognizable species are:

Body predominantly black; anterior margin of thorax on each side, upper part of humeral angles, sides of thorax in front of wings, a submedial spot on each side of base of thorax, broad sides of scutellum, propleural part, greater part of pleurae (excluding only black mesopleuron, lower part of sternopleuron and mesosternal part), hind margins of tergite 1 and to a great extent venter reddish brown or sienna brownish; venter, however, much darker in many specimens; sides of buccal rims tending to be yellowish or yellowish brown, sometimes distinctly yellowish on lower aspect; hind margins of tergites 2–6, more especi-

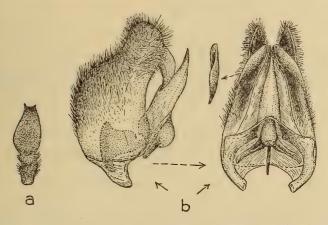
ally discally, and greater part or entire 7 ivory yellowish, bony yellowish or even slightly ochreous yellowish, the yellowish often margined with orange yellowish on basal side, the hind margins of tergites 2–6 also broader along the mid-dorsal line, usually broader in  $\mathfrak{P}$ ; hind margins of sternites reddish, reddish brownish to yellowish; exposed parts of hypopygium and lobes of last sternite (dorsal in position) of  $\mathfrak{F}$  to a large extent yellowish; front and middle legs predominantly yellowish brownish, sienna brownish to brown, the upper surfaces usually darker brownish and in some specimens entirely dark brownish; hind legs with the coxae and trochanters brownish, the basal half of femora pale yellowish and the apical half very dark brownish, appearing black, due to black



Text-fig. 15. Wing of *Tomomyza pictipennis* Bezz. (X=cross vein sometimes dividing first submarginal cell into two).

scaling, the middle part of hind tibiae and sometimes basal half at least of hind tarsi pale yellowish, the base below and apex of hind tibiae being dark and black-scaled and the hind tarsi sometimes also entirely dark; integument of occiput and ocellar part microscopically rugulose, that on sides of front part of frons and facial region more or less smooth and shining; thorax and scutellum above dull and finely rugulose and abdomen finely and subscabrously rugulosopunctate, even finer than on thorax; greater part of pleurae smooth and shining. Vestiture in form of shortish, bristly hairs on ocellar and frontal part, on humerus, on sides of tergite 1 and sparsely on metapleural parts and of fine, decumbent scales or pile on thorax, abdomen and legs, that on disc of thorax very fine; fine, brilliantly gleaming, silvery whitish pruinescence on sides of frons, sides of facial region and behind eyes and to a certain extent on pleurae and coxae; hairs on head above predominantly dark or black; scales or pile on thorax silvery greyish, the minute ones on disc more or less in three streaks and the longer ones on sides as a sericeous whitish band, the intervening streaks on disc dark or tinted brownish; scales or pile on sides of scutellum and on tergite I gleaming sericeous to silvery whitish, that medially dark blackish brown; fine scale-like pile on abdomen above mainly very dark or black, gleaming slightly greyish in certain lights, especially on venter below, distinctly more silvery greyish basally and medially on tergites; scaling on legs dark or blackish on upper parts of front and middle femora and on dark parts of hind legs, the rest of the scaling on legs and even the intermixed ones on upper parts

of front and middle ones gleaming sericeous whitish to slightly silvery, more so on tibiae and pale parts of hind legs. Wings (text-fig. 15) very characteristic, with the anterior costal half to beyond middle cross vein, including marginal cell and somewhat irregular spot-like infusions along veins in apical and hind parts and the spots near ends of posterior veins, dark smoky brownish to blackish brown; greater part of axillary lobe and anal cell, a spot near apex of first and second basal cells, a spot across base of second and third veins, a small roundish spot and a larger, more quadrate spot in apical part of marginal cell and the apical and posterior parts of wings (not occupied by dark infusions and spots) subhyaline or subopaquely whitish, giving the wings, especially the apical and hinder parts, a marbled or mottled appearance; veins very dark



Text-fig. 16. (a) Left antenna (outer side) of 3 Tomomyza pictipennis Bezz. (b) Side and ventral views of hypopygium of 3 of same species.

blackish brown to black; second vein very undulating and recurved in apical part; three submarginal cells usually present, formed either by the second submarginal cell being divided into a triangular cell at apex of wings and an elongated cell by a longitudinal vein, or by a cross vein ('X' in figure) uniting the projecting stump at base of normal second submarginal cell to marginal cell, in which case the apical triangular cell is incomplete; veins in this apical part usually unstable or zigzag, with a tendency to give off stumps and even to form more than three submarginal cells; vein between discoidal and third posterior cells constantly sinuous as shown in figure and also giving off a short stump into third posterior cell; halteres brownish, their knobs dark brownish to black above. Head (text-fig. 14) with the interocular space on vertex in 3 about 2 times distance between outer margins of posterior ocelli, in ♀ slightly broader, but relationship to ocelli the same; tubercular prominence in Q broader and larger; frons with the outer apical angles of raised front part not produced; antennae (text-fig. 16, a of 3) with joint 1 about, or more usually a little more than, 2 times as long as 2, with 3 a little longer than 1 and 2 combined, flattened, more flattened and depressed on inner side, broadest at about, or just before middle, somewhat truncated apically, ending on inner apical aspect in a style and on lower aspect in a slight process; proboscis about  $1-1\frac{1}{2}$  mm. long, rather stoutish, finely striate below, the labella rather pointed. Hypopygium of 3 (text-fig. 16, b) with the outer apical parts of basal part much produced, without any spine-like outwardly projecting process at base of posterior prolongation as in the two preceding species; the hair on basal part fairly dense and conspicuous; beaked apical joints claw-shaped and much laterally compressed (middle figure of text-fig. 16, b); basal strut shaped as shown in dotted outline.

In the British, Transvaal and South African Museums.

Length of body: about  $5\frac{1}{2}$ –9 mm. Length of wing: about 4–7 mm.

Locality: Eastern and Little Karoo, Koup Karoo, Tankwa Karoo, Nieuveld Karoo and Namaqualand.

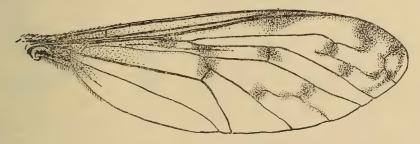
This species appears to be very variable in size, in the intensity of wingcoloration and in the unstable nature of the veins at apex of wings. Specimens from Somerset East have the three submarginal cells formed by the base of vein between the normal two submarginal cells becoming joined on to apical part of marginal cell as shown by 'X' in the text-figure. In the more typical form from Willowmore and other parts of the Karoo and Nieuveld Karoo the three submarginal cells are formed (as in text-figure, but without 'X') by a cross vein in the normal second submarginal cell. The veins in apical part of wings are, however, very unstable and there is a tendency for them to give off stumps which sometimes even divide the apical part into more than three submarginal cells. Some specimens from Worcester and Citrusdal have the wings very darkly infuscated and the usual apical spot-like infusions more extensive and in some specimens from these localities a cross vein (shown in dotted outline) in apical part of first submarginal cell even divides off another apical cell in wings. Other specimens from the Bo-Kouga in the Uniondale District have the wings even more extensively darkened, the entire background itself being dark and even the anal and axillary cells are infuscated. Some specimens from the Moordenaars Karoo, Koup Karoo and Uniondale District have the infuscation in wings much reduced and represented only as spots on the cross veins and along other veins. Such specimens are often also distinctly smaller.

Specimens of this species were taken resting on or flitting among the branches and dried twigs of Mesembryanthemums.

# Tomomyza pantostomoides n. sp.

Body mainly black; humeral angles, sides of thorax, scutellum (excepting a central black fascia or streak), a submedial fascia on each side of tergite r opposite scutellum, propleural part, pteropleuron, sternopleuron in part and metapleural parts castaneous brownish or dark sienna brownish; discal parts

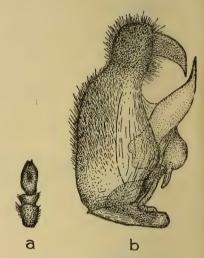
of tergites and to a certain extent also of sternites tinted obscurely sienna brownish; hind margin of tergite I yellowish brownish; hind margins of tergites 2–8 broadly ivory to bone yellowish mid-dorsally, forming a central row of spots on abdomen above; hind margins of 3 and 4, however, ring-like ivory yellowish across entire margin and central spots on 7 and 8 occupying almost entire discal part; upper margin of lateral lobes of last sternite (tergal in position) broadly yellowish, the lower margin more narrowly yellowish red; hind margin of last sternite also narrowly yellowish; legs with the coxae and front and middle femora dark castaneous brownish, lower surfaces of the latter slightly paler, with the hind femora blackish brown, their basal parts yellowish; front and middle tibiae yellowish, their lower surfaces and apices dark; hind tibiae yellowish, their bases below and apical parts blackish; tarsi dark blackish brown, their bases more yellowish brownish. Vestiture with the hairs on ocellar



TEXT-FIG. 17. Right wing of 3 Tomomyza pantostomoides n. sp.

tubercle and base of frons black; fine hairs on frons anteriorly gleaming sericeous yellowish and reddish golden; sparse tuft on each side near apex of buccal cavity and fine pile on occiput also reddish golden in certain lights; hairs on sides of thorax sericeous whitish; fine pile and scaling on thorax above in streaks of silvery ones, separated by deep reddish or brownish golden ones; that on scutellum, as well as small tuft on each side apically, silvery whitish; that on sides of tergite 1 gleaming sericeous whitish; pile on abdomen above very fine, mainly black, but with a A-shaped patch of silvery-gleaming pile discally on tergites 2-6 and also much silvery pile on posterior tergites; that on venter mostly black; scaling or pile on legs mostly black on femora, silvery on their bases, that on tibiae gleaming silvery, blackish below on front and middle tibiae and on base below and apices of hind ones; tomentum on frons, antennae, in a spot on each side of buccal cavity and behind eyes silvery. Wings greyish hyaline, but with smoky brownish infusions and spots in the anterior part and on cross veins as shown in text-fig. 17; second vein very much recurved at end; veins in apical part giving off appendices or cross veins to form four submarginal cells of which one at apex of wings is small; middle cross vein a little beyond middle of discoidal cell; the latter roughly spindle-shaped, the vein between it and third posterior cell sinuous and without a projecting stump; squama brownish, its sparse fringe also brownish; halteres brownish, the hinder upper part of knobs whitish. Scutellum comparatively large, transverse, transversely convex discally, narrowed apically to a bluntly rounded and shining apex, its sides steep. Head more like that of a Pantostomus, the apical part of frons taking part in formation of the prominent facial cone; antennal sockets far forwards as in Pantostomus; dorsal part of face very short, very much shorter than in any

other known species of Tomomyza; ocellar tubercle ridge-like and continued as a ridge to occipital sulcus; interocular space in 3 as broad as tubercle; antennae with joint 1 about twice as long as joint 2, joint 3 shaped as shown in text-fig. 18, a; buccal cavity deep, its apex ending acutely in facial part between antennae; proboscis about 1.5 mm. long. Abdomen longish, with very fine microscopic, setiferous puncturation, showing an indication of a very faint and shallow, oblique depression on each side discally on tergites 2 and 3; apical part of abdomen somewhat laterally compressed. Legs very well developed, rather long, especially the hind ones; spurs on apices of tibiae as reduced as in Pantostomus; pulvilli broadish, leaf-shaped. Hypopygium of 3 (textfig. 18, b) very much like that of pictipennis, but differing in having more hairs on basal parts, especially apically; surface of apical part of



Text-fig. 18. (a) Right antenna (inner side) of 3 Tomomyza pantostomoides n. sp. (b) Side view of hypopygium of 3 of same species.

basal parts distinctly more coarsely punctured; basal lobe of basal parts also longer; basal strut (in dotted outline) slightly differently shaped.

From a 3 in the South African Museum.

Length of body: about 11 mm. Length of wing: about 8 mm.

Locality: South-eastern Cape: Patentie in the Humansdorp Division (Mus. Exp., Oct. 1938).

This unique 3-specimen is remarkable in that it constitutes a sort of transitional species between Pantostomus and Tomomyza. The rather prominent facial cone in which the anterior part of frons and antennal sockets also take part, and the consequent shortening of the true face, is characteristic of Pantostomus and not present in any of the other known species of Tomomyza to the same extent. In this respect and also in the shape of its scutellum and longish legs it differs from other species. From pictipennis, which it superficially resembles in appearance, colour and certain wing characters, it may at once be distinguished by the structure of the facial cone, larger, more convex, more pointed and subtriangular scutellum, longer legs, more extensive black and yellow on hind legs, less infuscated or mottled wings, etc.

#### Tomomyza stenolopha n. sp.

A solitary Q specimen in the collections before me is so entirely different from the other known species of this genus that it cannot be related to any one of them. It is characterized as follows:

Body mainly black; an obscure spot on each side of buccal cavity, humeral angles, sides of postalar calli, middle parts of pleurae, greater part of metapleural region, hind margin of tergite 1 (especially discally), a large central spot apically on tergites 2-5 (larger on latter), entire 6 and 7, greater part of venter, coxae and legs yellowish red or reddish; antennae and proboscis more brownish. Vestiture with the markedly shortish hairs on ocellar region and frons black; fine scale-like hairs or pile on sides of thorax and on scutellum silvery; scaling on thorax minute or wanting, mainly dark; pile on abdomen above very minute, scarcely discernible, dark or black, but appearing greyish (especially on sides) in certain lights, the fine hairs across hind margins of posterior tergites also black; markedly shortish and rather sparse hairs on sides of tergite I tinted brownish, those on metapleuron more greyish; fine hairs on femora mostly dark and minute hairs on tibiae more yellowish like the spicules under tarsi; silvery pruinescence present on each side of facial part, in a streak behind eyes and obscurely on notopleural part and hinder part of metapleurae. Head with the occiput markedly short, only about as long as, or only a little longer than, antennal joint 3, dull due to minute rugulose microsculpture; central occipital fovea rather deep; interocular space on vertex markedly narrow, narrower than in all the other known species, in Q only about as broad as, or scarcely wider than, ocellar tubercle; ocellar tubercle pimple-like, containing only posterior ocelli and continued posteriorly as a ridge, the anterior ocellus situated more forward and separated from tubercle by a distinct transverse depression or gap; frons more rapidly widening apically than in other species and, though shining, with fine, transverse, rugulose microsculpture; face short, but distinct, also with minute rugulose microsculpture; antennae with joint I short, broader than the very small, transverse joint 2 which it embraces cuplike, joint 3 broadest very near base, gradually tapering, but subtruncate apically, ending in an upper, small stylet and a lower, smaller process; proboscis stoutish, confined to buccal cavity. Thorax dull above, due to distinct, transverse, rugulose or leathery sculpture which is also present on scutellum; pleurae more shining, but with fine striae. Wings distinctly and uniformly tinged smoky greyish throughout, only the costal cell and basal half of first basal cell more yellowish; only two submarginal cells present; base of vein between submarginal cells with a stump; vein between discoidal and third posterior cells normally sinuous; halteres with anterior part of knob brownish and hinder part whitish. Abdomen cylindrical, dull due to very fine, leathery or rugulose sculpture, which is coarser across basal part of tergite 1 and slightly finer and denser on sides of rest of tergites.

Type in the South African Museum. Length of body: about  $5\frac{1}{2}$  mm. Length of wing: about 4 mm.

Locality: Western Cape: Wit River Valley running into Bain's Kloof near

Wellington (Mus. Exp., Dec. 1949).

### Tomomyza pallipes Bezz.

(Bezzi, p. 80, Broteria (Ser. Zool.), xx, fasc., ii, 1922.)

This species, which Bezzi described in a very short note, is represented by a 3 and some 99 in the collections before me. There appears to be no doubt that one specimen, named by the late Dr. Brauns and now in the Transvaal Museum, was one of the batch of specimens which Brauns had forwarded to Bezzi. The characters of this species, as based on the material before me, are as follows:

Body predominantly black; antennal joint 3 slightly yellowish brownish along lower part in some QQ; sides of face and buccal part yellowish; humeral angles and an elongated spot on anterior upper part of mesopleuron also pale yellowish; middle part of pleurae tinted brownish to a large extent; hind margins of tergites along mid-dorsal line ivory yellowish, represented as a central row of ivory yellowish spots, the yellowish on tergite 7 in 2 and lappets of last sternite in 3 more extensive, the greater part of 7 ivory yellowish; venter more or less dull brownish, but sternite 7 in 9 more yellowish; legs predominantly pale, yellowish to pale yellowish brownish, the upper apical part of hind femora and to a certain extent upper surfaces of the others and the tarsi slightly darker, more brownish; integument of ocellar, frontal and facial regions smooth and shining, that of thorax above very minutely, but not densely, punctured, more or less subshining, not dull and rugulose as in pictipennis and stenolopha, that of abdomen subscabrously ruguloso-punctate; pleural parts shining. Vestiture with distinct, fine hairs on head, thorax and scutellum above, and on legs in addition to the fine depressed or decumbent, scale-like pile on body above; hairs on head, thorax and scutellum and on legs very dark blackish brown or black; pile in a band on sides of thorax gleaming sericeous whitish to silvery, that on sides of scutellum also sericeous whitish; fine scales or pile on disc of thorax appearing greyish, but with distinct golden or brownish gleams; hairs on sides of tergite 1 mainly sericeous whitish; scaling or pile on abdomen very dark blackish brown to black, but with a slight greasy or greyish sheen; fine silvery tomentum or pruinescence on sides of, or on entire, frons, sides of facial region, in a streak behind eyes, along each side of thorax and to a fainter extent on pleurae; scaling on legs mainly dark on upper and apical parts of femora, especially hind ones, paler below and on tibiae, appearing slightly more yellowish in certain lights, but dark in others. Wings greyish hyaline; veins brownish to blackish brown; only two submarginal cells present; vein between discoidal and third posterior cells not markedly sinuous, without a stump; halteres brownish, the upper anterior part of knobs brownish. Head with the

interocular space on vertex at narrowest part about 2 times distance between posterior ocelli in both sexes, though appearing broader in Q; outer apical parts

of frons not prominent or produced, only slightly tumid on sides; antennae with joint 1 very short, scarcely, or only a little, longer than joint 2, joint 3 a little longer than 1 and 2 combined, more or less equally broad throughout in \$\partial\$, somewhat truncated apically, ending in a minute stylet on inner upper aspect; proboscis rather slender, about 1–1.5 mm. long, finely striate below; palps slender, quite as long as antennae, with sericeous-gleaming hairs below. Abdomen tending to be laterally compressed. Hypopygium of \$\frac{1}{2}\$ (text-fig. 19) differs from that of pictipennis in not having the outer apical part or angle of basal parts so markedly produced, less dense hair on basal parts and a differently shaped basal strut.

In the Transvaal and South African Museums.

Length of body: about  $4-5\frac{1}{2}$  mm. Length of wing: about 4-5 mm.

Locality: Karoo: Willowmore (Brauns, 1 Nov. 1909). Koup Karoo: Meiringspoort (Mus. Exp., Oct. 1937).



Text-fig. 19. Side view of hypopygium of & Tomomyza pallipes Bezz.

# Tomomyza philoxera n. sp.

This species is very near *pallipes*, but shows some distinct differences. Compared with the latter its chief characters are as follows:

Body predominantly black, somewhat shining; conical facial region predominantly shining black, only an elongated spot on each side near lower part yellowish, the entire sides of cone not yellowish as in pallipes; humeral angles much darker, more brownish; antennal joint 3 and proboscis dark brownish; pleurae on the whole much darker, dark castaneous or pitch brownish in the middle; hind margin of tergite 1 discally, a triangular, apical, discal spot on each of tergites 2-7 along mid-dorsal line, greater part of 7 in 2, last sternite in  $\mathcal{P}$  and apical parts or angles of last sternite (tergal in position) of  $\mathcal{S}$  ivory yellowish to pale orange yellowish, the spots becoming slightly smaller apically; hind margins on sides of tergites 3 and 4 or 3-5 whitish or ivory yellowish, more conspicuous in 3; legs on the whole much darker than in pallipes, predominantly castaneous brownish to piceous brownish, the upper faces of femora blackish, due to blackish scaling; front and middle tibiae and tarsi tending to be darker than in pallipes. Vestiture as in pallipes, the hairs above also dark or blackish; those on humeral angles, upper part of mesopleuron and on sides of tergite 1 also sericeous to silvery whitish; scale-like decumbent pile on sides of thorax also band-like and silvery; rest of fine pile on thorax composed of silvery and dark-coloured ones, the dark ones predominant, with scarcely or without any

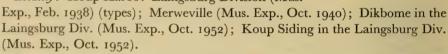
distinct reddish golden or brownish-gleaming ones on disc as in *pallipes*; pruinescence the same; pile on abdomen predominantly black, appearing greyish, especially on sides, when viewed obliquely from behind, the pile absent from yellowish triangular spots above; scaling or pile on venter also blackish; scaling on legs mainly black, but some fine and sparse yellowish ones on basal parts of hind femora, sometimes with longish hairs on femora and tibiae as in *pallipes*. Wings as in the latter, somewhat greyish hyaline, iridescent; veins on the whole tending to be darker, dark blackish brown, even becoming black towards apex; apical bend of second vein tending to be deeper, more recurved; halteres dark brownish above, their knobs dark blackish brown above in front half and almost white in hinder half. Head with the interocular space on vertex in  $\delta$ , at narrowest part, a little less than 2 times distance between posterior ocelli (outer margins); space in  $\circ$  about 2 times this same distance;

frons as in *pallipes*; antennae with joint 1 longer than, or almost 2 times as long as, joint 2, joint 3 a little longer than 1 and 2 combined, more or less equally broad throughout in  $\mathbb{Q}$ , distinctly broader, more ovoid in  $\mathbb{Q}$ , also somewhat truncated apically as in preceding species; proboscis and palps as in *pallipes*. Hypopygium of  $\mathbb{Q}$  (text-fig. 20) with the apical angles of last sternite, enclosing hypopygium, tending to be blunter than in the latter species; basal parts and beaked apical joints very similar, but the basal process of each basal part slightly longer, slightly denser hairs being present on apical region; basal strut shaped slightly differently (cf. text-figs. 19 and 20).

From 17 33 and 16 99 (types in the South African Museum).

Length of body: about  $5\frac{1}{2}$ -8 mm. Length of wing: about 5-6 mm.

Locality: Koup Karoo: Laingsburg Division (Mus.



Text-fig. 20. Side view

of hypopygium of 3

Tomomyza philoxera n.

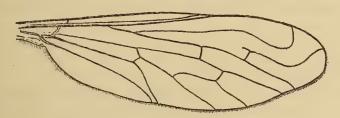
Representatives of this species are more frequently found resting on bare stones or on the ground or sand between bushes.

## Tomomyza karooana n. sp.

This species also resembles *pallipes* very closely, but differs in certain characters which appear to be of specific value. It differs from the latter species in the following respects:

Sides of thorax, from wings to humeral angles, usually distinctly reddish yellowish; sides or basal angles of scutellum constantly reddish yellow in both

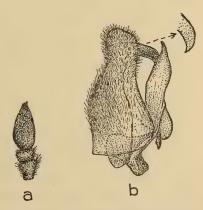
sexes; row of pale triangular discal spots on hind margins of tergites along mid-dorsal line slightly deeper yellowish, more ochreous to pale orange yellow, their basal parts distinctly more orange; entire hind margin of tergite 1 more reddish yellow and with almost entire tergite 7 and sternite 7 in  $\mathcal{P}$  yellowish; legs usually darker brownish yellow, the upper parts of femora brownish and lower parts more yellowish, the apical halves of hind femora more distinctly dark, due to dark scaling, and the tarsi, especially upper surfaces, slightly darker brownish; integument as in *pallipes*, but greater part of frons in  $\mathcal{S}$ ,



Text-fig. 21. Wing of Tomomyza karooana n. sp.

however, dull. Vestiture with similar dark or blackish brown to black hairs on ocellar and frontal regions and on thorax and scutellum above, but without any such hairs on legs; pile and pruinescence in lateral band on thorax also gleaming sericeous whitish; fine, scale-like pile on disc of thorax in form of two faint submedial bands of very fine greyish sericeous ones, separated by broader bands of very fine reddish golden or brownish pile, more visible in certain lights, especially along midline; pile on scutellum and hairs on sides gleaming sericeous whitish as in pallipes; pile on abdomen above also predominantly dark

or black, but that discally across bases of tergites appearing more dull greyish in certain lights; fine hairs on front part of frons in ♀ yellowish, more whitish in ♂; brilliantly silvery pruinescence on frons in 3 more extensive, occupying almost the whole or entire frons; scaling and very fine and short hairs on legs predominantly dark on apical halves of femora and in form of intermixed dark and sericeous yellowish ones on rest of legs. Wings (text-fig. 21) vitreous hyaline, iridescent; veins very dark brownish, becoming slightly paler towards base; venation as in pallipes and philoxera; two submarginal cells present; halteres similar. Head with the interocular space in both sexes about, or a little



TEXT-FIG. 22. (a) Left antenna of 3 of Tomomyza karooana n. sp. (b) Side view of hypopygium of 3 of same species.

less than, or a little more than, 2 times distance between outer margins of posterior ocelli, though narrower in 3 than in  $\mathfrak{P}$ ; ocellar tubercle rather shallow in  $\mathfrak{P}$ ; frons with the transverse depression almost absent in 3, very shallow in  $\mathfrak{P}$ ; apical part between antennal sockets slightly more depressed than in pallipes; antennae (text-fig. 22, a) with joint 1 very short, subequal in length to, or a little longer than, joint 2, sometimes even nearly 2 times as long as joint 2, joint 3 broadish, more leaf-shaped and more subtruncate apically in 3; proboscis short, only about, or a little less than, 1 mm. long, on the whole shorter and stouter than in pallipes, finely striate below. Hypopygium of 3 (text-fig. 22, b) differs from that of the two preceding species by the slight differences shown in the figures.

From 8 33 and 8 99 (types in the South African Museum).

Length of body: about  $6-6\frac{1}{2}$  mm. Length of wing: about  $5-5\frac{1}{2}$  mm.

Locality: Nieuveld Karoo: Teekloof in the Nieuveld Escarpment (Mus. Exp., Nov. 1935); Beaufort West Dist. (Mus. Exp., Nov. 1935). Northern Karoo: Burghersdorp Dist. (Mus. Exp., Oct. 1935); Colesberg (Mus. Exp., Nov. 1939) (types); Steynsburg Dist. (Mus. Exp., 1935).

### Tomomyza barbatula Bezz.

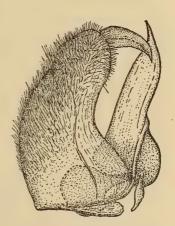
(Bezzi, p. 80, Broteria (Ser. Zool.), xx, fasc., ii, 1922.)

This species is represented by a single  $\Im$  specimen in the collections of the late Dr. Brauns and by a  $\Im$  specimen in the South African Museum. Its chief characters, as based on these two specimens, are as follows:

Body predominantly black, even sides of facial region black and humeral angles also black; antennal joint 3 very dark brownish, tending to be paler below; pteropleuron and sutural parts of metapleural region dark brownish; a central row of smallish apical spots on tergites 1-7 in 3 and 1-5 in 2 ivory whitish, their basal margins more orange yellowish, the spots towards apex of abdomen smaller; hind margins of tergites 2 and 3, and to a certain extent also 4, narrowly ivory whitish, the whitish extending down on each side to sides; legs entirely very dark blackish brown; integument of frons more or less shining, that on sides of facial region duller than in other species, very finely microsculptured, that on disc of thorax and scutellum dull, finely rugulose; integument of abdomen very finely and subscabrously ruguloso-punctate, but more or less shining, that of tergite 1 shining on sides, but transversely and finely striate discally; pleurae duller than in preceding species. Vestiture with black hairs only on ocellar and frontal regions, the rest of the vestiture on body in form of fine, decumbent, scale-like pile; longer pile on sides of thorax sericeous whitish; fine, somewhat sparse, scale-like ones on disc of thorax greyish silvery, that on each side of middle tinted slightly brownish or even gleaming slightly reddish golden, that on scutellum silvery; pile or hairs on sides of tergite I

very poorly developed, not so dense and conspicuous as in preceding species; fine hairs or pile on abdomen above predominantly black, but that along a broadish central band above, especially in  $\Im$ , gleaming brilliantly silvery whitish in certain lights; silvery pruinescence along sides of frons, anteriorly on frons, in two spots on each side of facial region, as a small patch on each side in front of antennal sockets, as three patches behind each eye and as a narrowish band on sides of thorax, and to a fainter extent on pleurae; distinct and fine blackish hairs present across apical part of buccal rim; fine hairs on legs black, but the scaling on femora above gleaming pale sericeous yellowish. Wings greyish hyaline, iridescent; veins dark blackish brown; venation as in preceding species; two submarginal cells present; halteres brownish, their knobs with the hind margins above and lower parts whitish. Head with the interocular space on vertex in  $\Im$  rather narrowish, relatively narrower than in the preceding three species, only a little broader than ocellar tubercle, the space in  $\Im$  about 2 times distance between outer margins of posterior ocelli; frons with a slight transverse

depression in front, more distinct in Q, the integument in front of it smooth and shining medially; front part of frons in 3 at least distinctly less tumid than in other species, the outer apical parts not produced; antennae with joint 1 about 2 times as long as 2, joint 3 broadest near base, somewhat obliquely truncate apically, ending in an upper inner apical style and an equally prominent inner lower process, the joint longer and less oval in ♀; proboscis short, finely striate below. Abdomen with tergite 1, especially in 3, very well developed, longer than in any of the preceding species, not overlapped discally by the scutellum. Hypopygium of 3 (text-fig. 23) with the hair on basal part very much less developed than in the preceding species, and with the outer apical parts of basal parts much shorter.



Text-fig. 23. Side view of hypopygium of 3 of Tomomyza barbatula Bezz.

In the Transvaal and South African Museums.

Length of body: about  $5-5\frac{1}{2}$  mm. Length of wing: about  $4-4\frac{1}{2}$  mm.

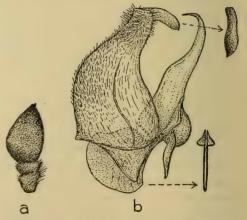
Locality: Karoo: Willowmore (Brauns, 1 Dec. 1920). Little Karoo: Calitz-dorp-Schoemanspoort (Mus. Exp., 24 Oct. 1938).

Easily distinguished from all the preceding clear-winged species by its predominantly black body and black legs, black facial cone which is not smooth along its upper part, by the rather prominent first tergite, smaller yellowish spots on abdomen above and by the presence of fairly conspicuous silvery pile along mid-dorsal line of abdomen.

#### Tomomyza nitidula n. sp.

Body and legs entirely black, even facial region black, only hind margins of tergites 1-4 and to a certain extent also 5 and 6 ivory yellowish, these hind margins extending ring-like right round from side to side, the margins of tergites 1-4 usually more conspicuous; integument of greater part of body, especially head above, facial region, sides behind eyes, thorax and scutellum above, pleurae and sides of tergite I brilliantly shining, polished in appearance, even the abdomen more shining than in most species; integument of ocellar and frontal parts smooth, that of facial region shining, but with fine microsculpture; thorax and scutellum with very fine and sparse puncturation; pleurae predominantly smooth and polished; abdomen very finely ruguloso-punctate from tergite 2 to apex. Vestiture in form of black, bristly hairs on ocellar and frontal parts and fine, grevish white to sericeous whitish hairs on thorax and scutellum, upper part of mesopleuron and on sides of tergite 1, that on sides of thorax, on humeral angles, mesopleuron and on scutellum longest; fine, setae-like pile on abdomen black, denser and more conspicuous towards apex; silvery pruinescence present only on sides of facial region, more conspicuous in 3, and as a longitudinal band behind eyes and feebly or faintly on metapleural part above hind coxae; fine hairs on legs very dark blackish brown or black, the fine spicules on tarsi below yellowish. Wings vitreous hyaline, iridescent; veins dark brownish to blackish brown; venation as in other species with uninfuscated wings; two submarginal cells present, the base of vein between these two cells, however, tending to be without a stump in some specimens; halteres with their apical parts and the knobs whitish or ivory white. Head with the interocular space on vertex in 3 about 2.4 times distance between outer margins of posterior ocelli and in about 2.8 times; posterior ocelli more feebly developed in both sexes than in other species, the ocellar elevation very low and

scarcely evident; from with the transverse depression, especially in ♀, comparatively distinct, with the outer apical part prominent, tumid or knob-like, more conspicuous than in all the other known species except anthracoides and guillarmodi; conical apical part of face fairly sharp; antennae (textfig. 24, a of 3) with joint 1 very short, only a little longer than 2, joint 3 quite, or much longer than, 2 times as long as joints 1 and 2 combined, very broad and almost triangular or leaf-shaped in 3, broadest just before middle, taper-



Text-fig. 24. (a) Left antenna of 3 Tomomyza nitidula n. sp. (b) Side view of hypopygium of 3 of same species.

ing to a point, more rapidly so on lower side, less broad, but also leaf-shaped in Q, in both sexes ending apically in a small style on inner aspect; proboscis short, only about, or a little more than, I mm. long; palps slender, much longer than antennae. Hypopygium of  $\mathcal{S}$  (text-fig. 24, b) differing from that of  $\mathcal{S}\mathcal{S}$  of other species in its slightly different shape, narrower neck-region of basal parts, the outer apical angles of which are not produced, and with much sparser hair on dorsum; aedeagus entirely different, shaped as shown in figures; beaked apical joints also differently shaped, less claw-shaped, less compressed (dorsal view to right); basal strut very much larger and broader than in the other species, provided at base with a process or ledge on each side.

From 2 33 and 6 99 (types in the South African Museum).

Length of body: about  $4\frac{1}{3}$ -6 mm. Length of wing: about  $3\frac{1}{2}$ - $4\frac{1}{2}$  mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (types); Klipvlei in Garies Dist. (Mus. Exp., Nov. 1931).

Easily recognized and distinguished from all the other known species by its black, shining and polished body, entire and ring-like ivory whitish hind margins of tergites 1–4 at least, the distinctly more turnid and slightly produced outer apical angles of frons (only shared by anthracoides and guillarmodi), comparatively low ocellar tubercle and different hypopygium. The large 3 specimen from Klipvlei appears to represent a slight variety, differing from the 3-holotype in having the whitish pile on thorax and scutellum distinctly shorter, finer, less dense, and less conspicuous, the outer apical angles of frons slightly more turnid.

This species was caught on the sandy banks of a dry river course and also on flowering Mesembryanthemums.

## Tomomyza anomala n. sp.

A unique 3-specimen in the collections before me differs from all the other known species with unspotted wings and is characterized as follows:

Body mainly black; antennae brownish; legs yellowish, but the front and middle tibiae, apical parts of hind ones and apical parts of tarsi darkened; hind margin of tergite 1 and a central dorsal apical spot on hind margins of 2–4 (the latter very small) yellow; hind margins on sides of tergites 2 and 3 whitish pubescent; integument of abdomen somewhat shining. Vestiture with the erect hairs on head above and on thorax and scutellum less dense, sparser and shorter than in other species, those on head above and discally on thorax and scutellum dark or blackish, those on humeral angles, propleural parts and sides of scutellum silvery; decumbent scaling or pile on thorax also much sparser and shorter than in other species, mostly greyish or silvery in certain lights; silvery pruinescence on head above and pleurae much less conspicuous than in other forms; fine, decumbent scaling and hairs on abdomen above black, except

for silvery streak on each side across hind margins of tergites 2 and 3. Wings greyish hyaline, slightly less clear or vitreous hyaline than in other species; veins blackish brown; costal cell markedly short, not extending very much beyond middle of wing; second vein distinctly and markedly more recurved or looped apically than in other clear-winged species; middle cross vein only a little beyond middle of discoidal cell; anal cell narrower than in other species and very broadly open apically; axillary lobe much shorter, narrower and more reduced than in other species; two submarginal cells present; squamae pale, white-fringed; halteres dark brownish above. Head with the interocular space on vertex in 3 about or nearly  $2\frac{1}{2}$  times width of ocellar tubercle; face in front of antennae relatively short, only a little longer than antennal joints 1 and 2 combined; antennal joint 3 ovate, slightly compressed, about 2 times as long as broad, a little longer than joints 1 and 2 combined; proboscis confined to buccal cavity. Abdomen rather markedly laterally compressed.

The hypopygium of this unique specimen has not been dissected out for fear of damaging the abdomen.

The unique type specimen in the South African Museum.

Length of body: about 4½ mm. Length of wing: about 3.4 mm.

Locality: West Cape: Papendorp at the mouth of the Olifants River (Mus. Exp., Oct. 1950).

## Plesiocera-group

Among the genera in which a characteristic facial extension or cone is developed the genus *Plesiocera* Macq. and the new genera *Conomyza*, *Coryprosopa*, *Prorostoma* and *Epacmoides*, described hereunder, appear to belong to a distinct and well-marked-off group, of which the several members show certain distinct characters which are more or less common to all of them and which give them a distinct facies by means of which they may be easily distinguished from other *Tomomyzinae*. The chief characters of this group are:

Body small to moderately large, usually somewhat elongate; abdomen elongate, tending to be cylindrical in 33. Vestiture composed of not very dense, but nevertheless distinct, erect or bristly hairs and dense scaling on body and abdomen above, on front half of pleurae and on legs; a metanotal tuft usually present; scaling on sides of thorax in front of wings and on pleurae usually denser, the individual scales sometimes broader and flatter than the rest; that on abdomen above dense and conspicuous in all the forms; hairs denser, more tuft-like on sides just above front coxae, humeral part, along upper part of mesopleuron and on sides of tergite 1; hairs on disc of thorax sparser, the prealar, postalar and scutellar bristles present, well developed in all the genera; hairs on abdomen usually shortish, inconspicuous, long only in Coryprosopa. Head slightly broader across eyes than across thorax; eyes with the hind margin either only feebly sinuous, not indented, or slightly emarginate, or even subangularly

indented and rarely bisected; interocular space on vertex in 33 about as broad as ocellar tubercle, in  $\mathcal{P}$  about, or a little more than, 2 times width of tubercle; antennae (text-figs. 27, 30, 31, 32 and 34) with joint 1 somewhat cup-shaped, broader and usually a little longer than joint 2, the latter usually transverse, joint 3 usually broad basally, narrowed apically, more or less club-shaped, the more slender apical part, however, never fine and very slender; facial extension formed by face alone, always distinct and projecting, conically pointed or convexly rounded, always well marked off from antennal insertions and anterior part of frons and upper genal parts; buccal cavity extending below head to about level of hind margins of eyes; proboscis shortish, more or less confined to buccal cavity, only apical part of labella sometimes slightly protruding; palps usually slender, not visibly jointed, the lower surface usually with fine and slender hairs; occiput not long, without any well-marked-off foveate depression behind ocellar tubercle, the depressed part there being merely the declivity to the gap between occipital lobes. Wings always with four open posterior cells; usually only two submarginal cells present (Stomylomyia, however, has three); alula and axillary lobe either much reduced or normally lobe-like; second vein originating some distance away from base of third vein, its apical part characteristically bisinuous, bending forwards and then backwards before ending in costal margin; middle cross vein never very much beyond middle of discoidal cell. Legs always with some distinct, or a row of, spines on outer lower aspect of hind femora, sometimes with some spines also on inner lower aspect in some 33, and sometimes also with spines on front and middle femora; tibiae always with distinct and conspicuous spicules and with longish apical spurs on middle and hind ones; front tarsi usually slightly modified, sometimes distinctly longer than front tibiae; claws curved down apically, the front ones sometimes much reduced; pulvilli usually well developed. Hypopygium of 33 variable, shaped as shown in text-figures 26-31 and 33-35.

From the *Pantostomus* and *Tomomyza*-group, this group of genera differs in not having the integument of body above conspicuously punctured or sculptured; abdomen not humped or foveately depressed submedially on middle tergites; shorter occiput, without a foveate, occipital depression behind ocellar tubercle; ocellar tubercle not elongated and ridge-like; facial extension composed of face alone and not of a protruding anterior frontal part and antennal sockets; antennal joint 3 differently shaped (cf. text-figs. 8–11, 13, 14, 16, 18, 22 and 24, a, and 27, 30–2 and 34, a); second vein in wings much less recurved apically; legs with spines on at least hind femora and well-developed spicules and spurs on middle and hind tibiae; and in having an entirely different type of hypopygium (cf. text-figures).

The various genera of this group are distinguished and separated by the characters given in the key to the genera at the beginning of this volume and morefully under the respective genera dealt with separately in the following pages. Probably also belonging to this group is the American genus *Epacmus* which Osten Sacken erected in 1887 to replace the preoccupied *Leptochilus* of Loew.

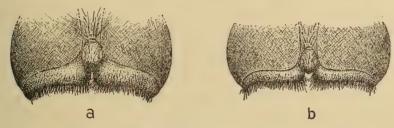
#### Gen. Plesiocera Macq.

(Macquart, p. 82, Dipt. Exot., ii, 1840; Bezzi, p. 298, Konowia, iv, 1925; Engel, p. 390, Die Fliegen d. Pal. Reg., lief. 91 (Bombyliidae), 1935; Austen, p. 93, Bombyliidae of Palestine, 1937.)

The identity of this genus is not quite clear from the various generic and specific descriptions in the literature at my disposal. From the descriptions of the various Palaearctic and North African species, allocated to it, it is quite evident that this genus is at present composed of disparate elements. The fact that the North American genus Epacmus Ost.-Sack. and the North African, or South Palaearctic, genus Stomylomyia Big. have both been placed as synonyms of Plesiocera by Engel has rendered this confusion still greater. Macquart in 1840 described a species algira from Algeria on which he based his genus Plesioceras, str. According to the more detailed specific description of this species given by Engel (p. 301, loc. cit.) it is quite evident that it differs from flavifrons Beck., the only other known Palaearctic species which appears to belong to Plesiocera s. str., in having the interocular space in 3 broader and in having the spicules on the tibiae more strongly developed, etc. The other five Palaearctic species all have three submarginal cells in the wings, and have been referred to Stomylomyia by Paramonow (p. 30 (92), Acad. d. Sc. d. l'Ukraine, xi, livr., 2 (Trav. Mus. Zool., Kiev, No. 6), 1929). In 1922 Bezzi (pp. 81-3, Broteria (Ser. Zool.), xx, fasc., ii) described two South African species, integra and biumbonata, which he also referred to Plesiocera. From his descriptions and from representatives of both species in the collections before me, it is, however, evident that they cannot be retained in *Plesiocera* s. str., as based on algira, and two separate new genera (Prorostoma and Epacmoides) have been erected in this memoir to contain them. In the collections before me there are, however, 7 new species from South Africa which have only two submarginal cells in the wings and other wing-characters which are almost identical with those of algira and flavifrons. As no material of the latter two Palaearctic species is at my disposal, it is very difficult to state whether the South African forms are generically identical with algira in the other details which are given here in my generic description of Plesiocera. Notwithstanding the fact that in the South African species the hind margin of the eyes is not markedly or subangularly indented and that the front claws are markedly reduced, I am nevertheless referring these species provisionally to the Palaearctic genus Plesiocera s. str. until such a time as a further study of both the Palaearctic and Ethiopian species will determine the true identity of this genus. The characters of this genus, as based solely on the South African forms, are as follows:

Body more or less elongate; abdomen much longer than broad, tending to be cylindrical in 33, sometimes even laterally compressed along its middle part. Vestiture in form of dense, flattened, lanceolate, or even distinctly broadened, scaling and erect bristly hairs, the scaling densely developed on body above, front half of pleurae, abdomen and legs, and in some forms also on frons; that

in a band on each side of thorax usually conspicuously cretaceous or pearly whitish like that on pleurae and abdomen below, but sometimes conspicuously ochreous yellowish; hairs or bristly hairs on body comparatively sparse or only moderately dense; those on head above, the fine, short and very dense ones on occiput and the hairs on thorax above visibly evident; those across propleural part from above front coxae to humeral angles, the dense tuft-like ones along upper part of mesopleuron and on sides of tergite I longer, denser and distinctly more conspicuous; those across hind margins of tergites short, fine and inconspicuous, the scales being predominant; prealar, postalar and scutellar bristles well developed and conspicuous; middle part of pleurae and the metapleurae usually devoid of hairs, though a tuft is present on metanotum;



Text-fig. 25. (a) Occipital region of 3 of Plesiocera psammophila n. sp. (b) Occipital region of 3 of Conomyza semirufella n. gen. and n. sp.

facial cone in some forms also tends to be bare. Head broad, broader across eyes than across broadest part of thorax; eyes large, convex, separated; interocular space on vertex in 33 about as broad ocellar tubercle, in 99 about or a little less than, or even a little more than, 2 times width of tubercle; hind margin of eyes (text-fig. 26, a) not indented, not subangularly or deeply emarginate, not bisected, the margin being only slightly or broadly sinuous; upper anterior facets in eyes in 33 scarcely, or only very slightly, coarser than rest; occiput (text-fig. 25, a) well developed, broadish, the sulcation deep and narrowish, the two lobes almost touching or very near together apically, the sulcation narrower than width of ocellar tubercle, the entire occiput, however, very much shorter than in Pantostomus and Tomomyza and a conspicuous, medial, foveate depression behind ocellar tubercle wanting; three ocelli situated on a distinct tubercle; from broader in QQ, the inner margins of eyes in QQ more gradually diverging anteriorly, with a faint central depression sometimes present either in basal half or towards middle, more distinct in QQ, without any deep or conspicuous transverse depression anteriorly, but with the apical part, just behind antennae, tending to be very slightly convex; integument of frons, especially in QQ, tending to be slightly shining; facial region in front of antennae distinctly and sometimes markedly conically produced or prominent, its apical part either sharply pointed or slightly rounded, this facial part more or less distinctly marked off from antennal region and upper genal part by a depression or groove-like depression; genae only represented on sides of facial cone, leading into a groove; buccal cavity long, broadish and deep; antennae (text-fig. 27, a) with the first joints close together, not situated in very distinct and conspicuous sockets or fossae as in Tomomyza-group, usually short, tending to be cup-like, usually longer and broader than second joints, the latter transverse, joint 3 the longest, usually longer than 1 and 2 combined, broadest at base or in basal half, from there either gradually narrowed apically or more rapidly narrowed on lower side, the apical part sometimes appearing slender, the joint sometimes slightly laterally compressed, ending apically in a distinct shortish or blunt style or joint, which itself ends in a fine hair-like stylet or even additional hairs; proboscis shortish, more or less confined to buccal cavity, the labellar lobes sometimes sparsely spinulate; palps slender, covered with fine, longish hairs on lower side, without any separate joints discernible. Wings usually glassy hyaline, vitreous hyaline or greyish hyaline, not infuscated even along front border in the known species; a distinct basal comb wanting; only two submarginal cells present; four posterior cells all open; axillary lobe narrowish, not lobe-like and broad; alula reduced or much reduced; second vein originating some distance away from base of third vein, about halfway to or nearer middle cross vein, usually obliquely, rarely perpendicularly, the apical part characteristically sinuous, at first bent forwards subangularly or kink-like and then roundly backwards before passing into margin; middle cross vein at about, or a little before or beyond, middle of discoidal cell. Abdomen with the extreme inflexed sides of tergites overlapping the sternites, in 33 entirely hiding the latter; last sternite in 33 with the lateral apical angles somewhat prominent or angular, sometimes distinctly angularly produced, the hind margin of this sternite tending to be bisinuate. Legs with distinct bristly hairs developed practically only on hind coxae; front and middle femora usually without any spines or spinules; hind ones with a few smallish ones, or at least with 1 or 2 distinct spines on lower apical part, in some 33 with a few or a row of spines on inner lower aspect; tibiae with the spicules and spurs on middle and hind ones, especially the latter, well developed, those on front tibiae usually vestigial or wanting, rarely conspicuous; tarsi, especially front ones, at least as long as tibiae, usually a little longer, in 33 usually much longer than tibiae; front tarsi, however, slightly modified in both sexes, relatively shorter and more hairy than the others and usually without spicules; claws with the front ones usually much reduced or almost vestigial; pulvilli well developed. Hypopygium of 33 (text-figs. 26-9) usually subject to slight torsion, situated on side opposite last sternite, usually visible at end of abdomen; basal part divided dorsally into two separate parts by a suture or impressed suture, usually covered with fine hairs above, each basal part with a more or less well-marked-off apical part and the outer apical part or angle usually produced or angularly prominent; beaked apical joints usually elongate and curved as shown in the dorsal views between the figures, usually ending apically in a sharp point or upturned spine, sometimes with a row of spinules or spinule-like hairs along outer aspect nearer apical part; aedeagus with the apical part usually slender, often directed

slightly upwards, the aedeagal part produced basally on dorsal aspect into a distinct, lobe-like or tongue-like process on each side (see figures) which is joined on to lateral ramus on each side, the aedeagus also with a distinct ventral process, formed as a medial, apically directed structure by the fusion and coalescence of each lateral ramus, the apical part of this process assuming various and complex shapes as shown in both side and ventral views; lateral and basal struts as shown in figures, the latter without a lateral shelf-like flange, but a short process on each side basally may be present.

From Pantostomus and Tomomyza this genus differs by the shorter and less developed occiput, non-punctured thorax, scutellum and abdomen, entirely different type of third antennal joint, non-socket-like antennal insertions, less raised front part of frons, very much less looped apical end of second vein, different type of hypopygium in 33, etc. From the Palaearctic Plesiocera s. str., as defined by Engel (p. 390, loc. cit.), it appears to differ in not having the hind margin of eyes subangularly or distinctly indented, in having non-spiculate front tibiae, very much reduced front claws and a tuft of hairs on each side metanotum.

The genus Stomylomyia Big. (p. xxxi, Bull. 9, ii, Ann. Soc. Ent. Fr., vii, 1887), which Engel (p. 390, loc. cit.) has relegated to the position of a subgenus of Plesiocera and of which I have only seen one species (europaea Lw.), differs from Plesiocera s. str. in having three submarginal cells in the wings, a tuft of hairs on the metanotum, longer hairs on abdomen, denser hairs on body, well-developed spicules on front tibiae, a more distinct indentation in hind margin of eye, etc.

## Key to the known South African species of Plesiocera

#### Males

- 1. (a) Conical facial region, head below and antennal joints 1 and 2 entirely or predominantly black; eyes usually darker, dark brownish or blackish brown; scaling on each side of thorax conspicuously cretaceous or chalky whitish, that on abdomen above either in form of two bands of brownish scaling separated by a broadish central band of whitish ones or, if dull ochreous yellowish above, sides and venter and sides of thorax not so contrastingly cretaceous whitish; apical angles of last sternite blunter; hind femora with fewer spines below, usually without any or with fewer than 5 or 7; wings more glassy or vitreous hyaline.
  - (b) Conical facial part, head below and antennal joints 1 and 2 below entirely very pale yellowish, bony yellowish to ivory yellowish; eyes usually much paler, more greyish greenish or yellowish; scaling on thorax ochreous yellowish on sides and along middle, separated on each side submedially by a cretaceous white longitudinal band, that on abdomen above ochreous yellowish and that on sides and on venter conspicuously and contrastingly cretaceous whitish like that on pleurae, sometimes with a narrowish white line on abdomen above as well; apical angles of last sternite more angular and more distinctly produced; hind femora with more numerous spines below, at least 5-7 on inner lower aspect; wings distinctly more greyish or greyish hyaline.

& philerema n. sp. (p. 111)

2. (a) Abdomen predominantly black, hind margins of tergites not red or reddish discally even if ventral part is slightly reddish; hairs on ocellar tubercle, base of frons, disc of thorax, medially on tergite 1 and across hind margins of 6 and 7 and across hind margin of last sternite very dark, blackish brown to black; three broadish bands of scaling on

disc of thorax and two broadish submedial bands on abdomen above brownish to reddish or sienna brownish; rest of scaling on thorax and abdomen above cretaceous or chalky whitish; costal and first veins and even veins at base of wings dark or blackish brown; knobs of halteres tending to be darker, more brownish above; scutellum tumid or inflated in appearance, its apex tending to be smooth and shining.

3 psammophila n. sp. (p. 102)

- (b) Abdomen more extensively red or reddish below, hind margins of tergites, even discally above, distinctly or even broadly reddish; hairs on ocellar tubercle, disc of thorax, tergite 1 medially, across hind margins of 6 and 7 and predominantly on last sternite pale, more yellowish or sericeous yellowish; scaling on disc of thorax and on greater part of abdomen above slightly paler, more dull ochreous yellowish or ochreous; costal and first veins and even basal parts of veins in wings distinctly more yellowish; knobs of halteres paler yellowish or yellowish white to white; scutellum less distinctly tumid, its apex dull, covered with scaling.
- 3. (a) Conical facial region distinctly less projecting, more rounded, its upper margin, in profile, almost perpendicular to axis of body, its apex blunter; hinder part of metapleural part, coxae and greater part of femora dark or blackish; abdomen, if predominantly reddish, without a well-defined, broad, central, black band above; scaling on frons denser, more conspicuously cretaceous whitish; fine pubescence on facial cone silvery whitish, denser; cretaceous white scaling on sides of thorax in front of wings denser, more extensive, more conspicuous; scaling on disc of thorax, scutellum and abdomen above more uniformly dull ochreous yellowish; front claws more reduced in relation to middle ones; smaller forms, about 4-5 mm. long, with wings about 3½-4 mm. long.
  - (b) Conical facial region distinctly more projecting, more conical, in profile more horizontal to axis of body, its apex more pointed; hinder part of metapleural part, middle trochanters, hind coxae and trochanters and more than apical parts of middle and hind femora more extensively reddish; greater ventral part and sides of abdomen reddish, only a well-defined band on abdomen above black; scaling on frons less dense, gleaming more pale sericeous yellowish; fine pubescence on facial cone less dense, less conspicuous, sericeous whitish; cretaceous white scaling on sides of thorax narrower; scaling on disc of thorax with a tendency to show two submedial whitish bands, that on sides of scutellum conspicuously chalky whitish; front claws only slightly smaller than middle ones; larger form, about 6 mm. long, with wings about 5½ mm. long.

3 rufiventris n. sp. (p. 109)

4. (a) Greater part of abdomen above and greater part of all the femora black.

& curvistoma n. sp. (p. 104)

(b) Abdomen more extensively reddish, even the dorsum reddish, and both middle and hind femora tending to be more reddish or reddish brown.

3 slight var. of curvistoma n. sp. (p. 104)

#### **Females**

- I. (a) Conical facial cone, head below and antennal joints I and 2 below entirely or predominantly black; scaling on sides of thorax in front of wings conspicuously cretaceous or chalky white; wings always distinctly glassy or vitreous hyaline; scutellum sometimes tending to be tumid or inflated.
  - (b) Conical facial cone, head below and sometimes also antennal joints 1 and 2 below entirely very pale yellowish, bony to ivory yellowish; scaling on sides of thorax more yellowish or ochreous yellowish and, if whitish, facial cone is yellow; wings sometimes more greyish or greyish hyaline; scutellum more flattened, rarely tumid.
- 2. (a) Abdomen with the entire venter, sides of tergites and all the hind margins of tergites (sometimes broadly) more extensively reddish; entire hind femora and more than apical part of middle ones, or entire middle ones, entirely or predominantly yellowish red; hairs on head above, thorax above and across hind margins of all the tergites much paler, yellowish to golden; scaling above on the whole more uniformly dull ochreous yellowish

to golden brownish, but that on sides of thorax and on scutellum more contrastingly and conspicuously cretaceous white; scutellum more flattened, its apical part less tumid, dull, not polished; costal and first veins and bases of other veins in wings more brownish; knobs of halteres paler above.

- (b) Abdomen predominantly black and, if extensively reddish on venter, hind margins of tergites not or only very narrowly and obscurely reddish (excepting only 6 and 7); hind femora entirely dark or black or only slightly reddened below; hairs on disc of thorax, across hind margins of tergites, especially on 6 and 7, tending to be very dark or black; scaling on thorax in form of whitish and brownish bands; scutellum somewhat tumid, its apical part tending to be smooth and polished; veins in wings slightly darker, more blackish brown; knobs of halteres more vellowish brownish to brown above.
- (a) Conical facial part distinctly less projecting, more rounded, its upper margin, in profile, more rounded or curved to main axis of body; interocular space relatively narrower, only or scarcely twice distance between posterior ocelli; antennal joint 3 short, rapidly narrowed to a point, no slender apical part indicated; abdomen with more black above, the black not tending to be present only as a row of discal spots; middle femora darkened basally or in basal halves and hind femora entirely yellowish; anal cell more or very broadly open; slightly smaller form, about 4-5 mm. long, with wings about 3½-4 mm. long.
  - (b) Conical facial part more conically projecting, more horizontal to main axis of body, its upper margin, in profile, more sloping at an angle; interocular space slightly broader, a little more than twice distance between posterior ocelli; antennal joint 3 at first rapidly narrowed and then more gradually, a more slender apical part thus present; abdomen more extensively reddish, the black more or less confined to disc as a row of broadish black spots; middle femora almost entirely yellowish and yellowish hind ones blackened on outer surface near apex; anal cell much more narrowed apically; slightly larger form, about 6-7 mm. long, with wings about 5½-6¼ mm. long.

♀ rufiventris n. sp. (p. 109)

4. (a) Abdomen predominantly or almost entirely black, the venter less extensively reddish and only sides of tergite 1, last sternite and hind margin of last tergite constantly and distinctly reddish; hairs on ocellar tubercle and base of frons distinctly darker, more blackish, and those on disc of thorax also more blackish.

♀ psammophila n. sp. (p. 102)

(b) Abdomen with the red below distinctly more extensive, hind margins on sides of tergites also distinctly reddish, also with distinct roundish reddish spots or infusions on sides of 2-6, nearer their hind margins; hairs on tubercle and frons more brownish, brownish golden or more golden yellowish than blackish, and those on disc of thorax appearing more brownish or blackish brown in certain lights.

♀ psammophila var. rufisticta n. (p. 104)

- 5. (a) Frons comparatively narrower, less broad anteriorly, its length from front occllus to antennae very much longer than its width in front, its surface less convex, sometimes slightly depressed in front of ocellus; front tibiae without any distinct spicules or spurs; front claws more reduced, smaller than half the size of middle ones; antennal joint 3 relatively much shorter, its slender apical part very much shorter, the joint much shorter than conical facial part; the latter entirely yellowish, its hairs very fine and short; scutellum more flattened; hairs on disc of thorax distinctly longer, sparser, and bristles on thorax and scutellum also longer; white scaling on abdomen above in form of a broad lateral band on each side or of lateral bands and a central band; smaller forms, about 4-7 mm. long, with wings about 3½-5 mm. long.
  - (b) Frons comparatively much broader, broader anteriorly, its length from front ocellus to antennae scarcely, or only a little, longer than its width in front, its surface slightly more convex, especially anteriorly, without any depression; front tibiae with small, but distinct, spicules and spurs; front claws less reduced, about half size of middle ones; antennal joint 3 relatively longer, its slender apical part much longer, the joint subequal in length to facial cone; the latter more orange or brownish yellow, with a black patch above under antennae, its hairs distinctly longer and more conspicuous; scutellum more convex or tumid; hairs on thorax distinctly denser and shorter and bristles on thorax

and scutellum also shorter; white scaling on abdomen above in form of a broad lateral band below on each side and girdle-like bands across hind margins of tergites; larger species, about 8½ mm. long, with wings about 7 mm. long.

♀ rhodesiënsis n. sp. (p. 106)

- 6. (a) Conical facial part more conically projecting, more horizontal to main axis of body, less rounded, the entire cone, buccal rim, head below and antennal joints 1 and 2 below yellow; coxae yellowish and venter more extensively or entirely pale yellowish red; interocular space at least twice distance between outer margins of posterior ocelli; frons dull, covered with denser hairs and scaling, without a silvery tuft on sides anteriorly; hairs on thorax and scutellum discally predominantly dark or blackish; scaling on thorax above with more ochreous or yellowish ones and white scaling on abdomen above in form of conspicuous lateral, or central and lateral, bands; wings slightly more greyish hyaline.
  - (b) Conical facial part distinctly less projecting, more rounded, in profile more rounded dorsally to main axis, with only the cone or apical part of it and genal parts of buccal rim yellowish; coxae dark and venter less extensively yellowish red; interocular space relatively narrower, distinctly much less than twice distance between outer margins of posterior ocelli; frons more shining, with much sparser hairs and with a dense, silvery tuft on each side anteriorly; hairs on thorax and scutellum yellowish or reddish golden; scaling on thorax with more whitish ones and whitish scaling on abdomen not in very conspicuous bands; wings slightly more hyaline. . . ♀ flavilabris n. sp. (p. 108)
- 7. (a) Scutellum, pleurae, coxae, greater part of femora and greater part of abdomen above black, the hind margins of tergites not reddish; scaling on sides of thorax ochreous yellowish, that on abdomen above also ochreous yellowish, but with a narrowish central line of white scaling; facial cone less prominent, not so sharply pointed.

♀ philerema n. sp. (p. 111)

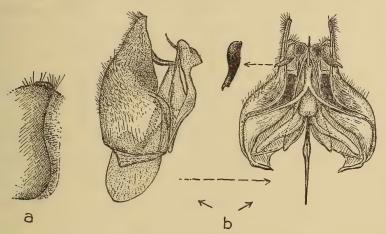
(b) Hind margin of scutellum, propleural part, metapleural part, coxae, anterior and middle femora, greater part of abdomen below and the broadish sides reddish or reddish yellow, the hind margins of tergites, even discally above, distinctly reddish; scaling on each side of thorax distinctly more whitish, that on abdomen above uniformly ochreous yellowish, without a central whitish line; facial cone distinctly more sharply pointed apically.

♀ pernotata n. sp. (p. 113)

### Plesiocera psammophila n. sp.

Body, including scutellum, predominantly black; edge of rim of buccal cavity tending to be yellowish; humeral angle, hind edge of metapleural part, hind margin or a spot on each side of tergite 1, extreme sides of tergites below, especially in 3, hind margin of tergite 7 in 2, narrow hind margins of sternites and the entire last sternite in 2 yellowish red to reddish; legs with the coxae black, trochanters tending to be yellowish red, front femora to beyond middle, at least basal halves of middle femora and almost entire hind ones black, the apical parts of femora and sometimes lower surfaces of hind ones yellowish; tibiae yellowish, the hind ones tending to be darkened apically; basal parts of front and middle tarsi yellowish to a variable extent, the hind ones tending to be entirely darkened. Vestiture with the hairs on ocellar tubercle, base of frons, disc of thorax, a few transversely across hind margin on sides of tergite 1, the scarcely distinct shortish ones on abdomen above, longer and more distinct ones across hind margins of 6 and 7 in 2 and also those across hind margins of 6 and 7 and last sternite in 3 very dark or black; prealar, postalar and scutellar bristles reddish brown or reddish, gleaming reddish golden to brownish golden; some of the bristly hairs on sides of thorax in front of wings also gleaming brownish

golden in certain lights; hairs on frons in front, across front part of pleural part, from front coxae to humeral angle, on mesopleuron and on sides of tergite I whitish; dense and short hairs on occiput also whitish; fine and sparse ones on facial cone gleaming sericeous yellowish; sparse hairs on venter and those across hind margins of last two sternites in  $\mathcal{P}$  sericeous yellowish to golden yellowish; bristly hairs on last coxae sericeous whitish; scaling on body rather dense, that on pleurae, in a band on each side of thorax before wings and on venter denser and cretaceous white; some cretaceous whitish scales also on front



Text-fig. 26. (a) Hind margin of eye of *Plesiocera psammophila* n. sp. (b) Side and ventral views of hypopygium of 3 of same species.

part of frons and in a narrowish, central band on abdomen above, especially in 3; scaling on thorax above in more or less three longitudinal bands of brownish or ochreous brownish ones separated, especially anteriorly, by whitish scaling; some ochreous brownish to sienna brownish scaling also on disc of scutellum and in two broadish, submedial bands on abdomen above, slightly broader in Q; whitish scaling on abdomen, apart from those in broad lateral bands and dorsal band, also across hind margins of tergites; scaling on legs predominantly cretaceous white, becoming slightly yellowish apically above on hind femora, tending to be dull yellowish or even dark on hind tibiae. Wings vitreous hyaline, iridescent, the base and costal cell showing a slight whitish or yellowish whitish subopacity; veins dark, blackish brown to black, only the base of costal vein and the false vein yellowish; second vein with an angular kink in apical part, its apical bend not very deep; squamae subopaquely whitish, their fringe white; halteres yellowish, the upper apical part of knobs darkened or even brownish. Head with the hind margin of eyes (text-fig. 26, a) distinctly not indented or emarginate, only very feebly sinuous; eyes separated above in 3 by width of ocellar tubercle, in 2 about, or very little less than, 2 times width of tubercle; frons scarcely or only feebly centrally depressed towards apical part, the base being more convex; facial cone well developed,

produced and conically prominent, distinctly pointed; antennae with joint I short, but distinctly broader and shorter than 2, joint 3 longer than 1 and 2 combined, broadened basally, appearing slightly knob-like at base, more rapidly narrowed apically on lower side, but on the whole gradually passing into the more slender apical part, ending apically in a short, bluntish style which itself ends in a hair-like stylet; proboscis a little less than 1 mm. long, with only apices of labella projecting slightly beyond apex of buccal cavity. Scutellum tending to be distinctly tumid or inflated in appearance, its apical part smooth and polished, somewhat turnidly rounded. Legs usually without any spines on front and middle femora below, sometimes, however, with a few minute and insignificant ones on middle ones below; hind femora with a few small spines on outer apical aspect and in 3 with a few small ones also on inner lower aspect, the spines in Q less developed and in both sexes an outer apical spine, or sometimes two spines, longer and more conspicuous; tibiae without any visible, or with only vestigial, spicules and spurs on front ones; front claws very much reduced in both sexes. Hypopygium of 3 (text-fig. 26, b) with the outer apical part of basal parts much produced and angularly pointed; beaked apical joints elongate, narrowish, shaped as shown in figures, especially dorsal view in middle; aedeagus with the apical part slender and bent upwards; ventral aedeagal process well developed, broadened apically into a rounded, shell-like process on each side of a central keel-like or carinate process; basal strut (see side view) with a deep sinuosity along its dorsal margin.

From 36 33 and 47 99 (types in the South African Museum).

Length of body: about  $3\frac{1}{2}-6\frac{1}{2}$  mm. Length of wing: about 3-5 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This species is variable in size. A long series also shows slight differences in the extent of the red, especially on hind legs. Some  $\mathbb{Q}\mathbb{Q}$  have the greater part of the middle femora and the greater part of the lower surfaces of hind ones reddish yellow. Six other  $\mathbb{Q}\mathbb{Q}$ , however, differ from the more typical forms in having the venter more extensively reddish, the reddish hind margins of the sternites very much broader, the hind margins of tergites on sides also reddish and with distinct and often conspicuous, rounded, reddish spots or infusions on sides of tergites 2–6; hairs on ocellar tubercle and base of frons apparently paler, more brownish than blackish. Some of these  $\mathbb{Q}\mathbb{Q}$  are also larger, reaching a length of about 8 mm. and having a wing-length of about 6 mm. In view of the absence of  $\mathbb{Q}$  and the tendency for  $\mathbb{Q}\mathbb{Q}$  of even the typical form to vary slightly, I refer these  $\mathbb{Q}\mathbb{Q}$  only to a variety: psammophila var. rufisticta n.

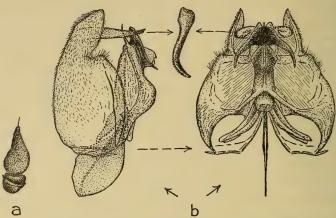
Representatives of this species are usually found settling on the warm sand or on the ground between Karoo bushes.

## Plesiocera curvistoma n. sp.

Body, including antennae and scutellum, predominantly black; humeral angle, narrow hind margin of metapleural plate, postalar calli to a certain

extent, hind margins of tergites, sides of tergites to a variable extent and broad hind margins of sternites yellowish red to pale reddish; greater part of venter and broad sides of tergites usually predominantly reddish or yellowish red; last sternite in 3 reddish to a variable extent, but sometimes with only its margins or sides reddish; legs with the femora in 3 darkened or blackened to beyond middle; apical parts of front and middle ones in 3 and extreme apices of hind ones yellowish; greater part of front femora to beyond middle and bases or basal halves of middle ones darkened or blackish to a variable extent in Q, the apical parts of front and middle femora and almost entire hind ones in 2 being yellowish red; tibiae and at least basal halves of tarsi in both sexes pale yellowish reddish, the apical parts darkened and the spines and spicules on legs black. Vestiture with the hairs comparatively sparse; those on ocellar tubercle and from whitish sericeous in 3, more yellowish to pale golden in 9; hair on thorax above also slightly more yellowish in  $\mathcal{P}$ ; prealar, postalar and scutellar bristles sericeous yellowish, gleaming distinctly more reddish golden in \$\inp\$; tufts on propleural part and on sides of tergite 1 whitish in both sexes; fine pubescence on facial cone towards apex silvery whitish; that on occiput sericeous yellowish in Q, appearing whiter and sometimes more silvery in 3; hairs across hind margins of tergites short, more distinct on last two tergites, sericeous yellowish, longer in Q; scaling well developed, with conspicuous, dense, flattened, cretaceous whitish ones on frons in 3; chalky or cretaceous whitish scaling also present in a conspicuous band on sides of thorax in front of wings, on front part of pleurae, especially sternopleuron, sides of tergite 1 and on coxae; rest of scaling on head behind eyes, on pleurae and on legs whitish; that on thorax, scutellum and abdomen above, especially in 3, dull yellowish to ochreous yellowish, that across hind margins of tergites tending to be paler, especially in  $\mathcal{Q}$ ; that on abdomen below paler than above, more cream-coloured to whitish; scaling on upper surfaces of hind femora at least tinted more yellowish. Wings vitreous hyaline, iridescent; veins very dark brownish to blackish brown, base of costal vein, false vein, basal part of first and base of wings distinctly yellowish; middle cross vein just before, or at about, middle of discoidal cell; squamae subopaquely whitish or yellowish white, their fringe almost absent and where visible whitish; halteres pale yellowish, the knobs very pale to almost white. Head with the hind margin of eyes only slightly sinuous; interocular space on vertex in 3 as broad as ocellar tubercle, in 2 a little less than 2 times width of tubercle; from in 9 tending to be more or less shiny in basal half, shallowly depressed in centre at about middle, this depression also visible under the scaling in 3; facial cone not so prominently conical as in psammophila, but when viewed from side more perpendicular, its curved upper margin appearing continuous with curvature of frons, the buccal cavity thus more horizontal in position, the facial cone, in profile, thus more rounded and bluntly parrot-beaklike than in psammophila; antennae comparatively short, with joint 1 very short, broader, but scarcely longer, than very short, transverse joint 2, joint 3 (textfig. 27, a) relatively short, more or less rapidly narrowed apically from a broad

base, without any distinct slender apical part and with the basal part below slightly prominent; proboscis short and stoutish, confined to buccal cavity. Legs without any spines on front and middle femora and with only a very few, 2 or 3, inconspicuous, short and fine ones in apical outer aspect on hind ones; tibiae without any visible spicules and spurs on front ones; claws of front tarsi much reduced and vestigial. Hypopygium of 3 (text-fig. 27, b) with the apical part of basal part narrowed and projecting on outer side; beaked apical joints elongate, almost cylindrical, the apical part curved inwards (see dorsal view



Text-fig. 27. (a) Right antenna (inner side) of 3 Plesiocera curvistoma n. sp. (b) Side and ventral views of hypopygium of 3 of same species.

between the two figures), provided with a row of fine spinules on the outer apical part; aedeagus with the apical part slender and spine-like, the aedeagal part produced basally on dorsal aspect into a pointed lobe (shown in dotted outline in left-hand figure); ventral aedeagal process characteristic, shaped as shown from a side view in left-hand figure and a ventral view in right-hand figure.

From 15 33 and 16 99 (types in the South African Museum).

Length of body: about 4-5 mm. Length of wing: about  $3\frac{1}{2}$ -4 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (types); Kamieskroon-Springbok (Mus. Exp., Oct. 1939).

Easily recognized by the slightly curved-down facial cone, the shortish antennae, the dense white scaling on frons in 3 and the very conspicuous band of cretaceous whitish scaling on each side of thorax.

## Plesiocera rhodesiënsis n. sp.

Body predominantly black; facial cone orange to brownish yellowish, the medial dorsal part under antennae blackish; buccal rim ivory yellowish, the head below, however, black; humeral angles and hind margins of metapleural part yellowish; postalar calli obscurely brownish or reddish brown; hind margins of tergites laterally, extreme sides of abdomen below to a large extent,

greater part of last tergite on side and entire ventral part yellowish red; legs with the hind coxae, greater part of femora (hind ones missing in this unique specimen), tibiae and basal parts of tarsi yellowish, the apical parts of the latter brownish. Vestiture with the hairs on disc of thorax shorter and denser than in other species; those on facial cone more developed and longer than in other species, gleaming pale sericeous yellowish to almost whitish; hairs on frons anteriorly more sericeous whitish; fine hairs on occiput dense and dark above, but pale sericeous yellowish to whitish on sides in different lights; hair on disc of thorax composed of brownish and sericeous yellowish ones; prealar bristles vellowish, those across base of thorax brownish to blackish brown and those on scutellum also dark; longish hair on upper part of mesopleuron, on propleural and prosternal parts, in metanotal tuft and on sides of tergite I sericeous whitish; hairs across hind margins of tergites poorly developed, yellowish, denser and mainly black on last two tergites; scaling behind eyes and on pleurae conspicuously cretaceous white; that on thorax, scutellum and abdomen above predominantly deep ochreous yellowish, that on abdomen very dense; that on sides of thorax slightly more whitish, but not as white as on pleurae; a small tuft at apex of scutellum and transverse bands across hind margins of tergites, a broadish longitudinal band on each side of abdomen below and the venter conspicuously cretaceous or chalky white; scaling on legs also predominantly cretaceous whitish. Wings vitreous hyaline, iridescent; veins brownish, becoming more yellowish at base of first vein and at bases of some of the others at base of wings; second vein originating almost at right angles and with a faint indication of a slight stump at bend, its forward bend in apical part rather conspicuous; middle cross vein a little beyond middle of discoidal cell; squamae subopaquely yellowish whitish, fringed with very sparse whitish hairs; halteres and knobs very pale yellowish whitish, the knobs rather broadish. Head with the interocular space on vertex in 2 appearing broad, but only a very little broader than 2 times distance between outer margins of posterior ocelli; frons markedly broad, relatively broader than in other species, very broad anteriorly where it is only a little less broad than distance between front ocellus and antennae, its upper surface convex, especially anteriorly, not depressed centrally; facial cone not very sharply produced or pointed, more rounded apically, more or less smooth and shining; antennae well developed, joint I cup-shaped, whitish-rimmed and much broader than joint 2, joint 3 longer than in other species, club-shaped, its apical slender part longer than in other forms; proboscis about 1.2 mm. long, stoutish, plump, stouter than in other forms, its labella well developed, broad and ovoid, rounded apically and covered with conspicuous spinules. Legs with distinct spicules and spurs on front tibiae; front claws reduced to a lesser extent than in other species, being only about half as long as middle ones.

From 1 Q (the type) in the South African Museum.

Length of body: about  $8\frac{1}{2}$  mm. Length of wing: about 7 mm. Locality: Southern Rhodesia: Chipatani Urungwe (Williams, 10 Nov. 1938). Easily recognized by its relatively large size, broad frons, stoutish proboscis, shortish and dense hair on disc of thorax, narrowish cross bands of white scaling across hind margins of tergites, presence of spicules on front tibiae, etc.

The shape of the frons, proboscis and antennae suggests affinities with the new genus *Prorostoma*, described further on, but the hind margin of the eyes is not indented, the front tarsi are longer, the alula is much reduced, etc.

### Plesiocera flavilabris n. sp.

Body predominantly black; facial cone or apical part of cone only and buccal rim bony yellowish or ivory yellowish, the buccal rim more whitish: sides of face below antennae black; abdomen above predominantly black, only extreme sides of tergites below, broadish hind margin of last tergite and broadish hind margins of sternites yellowish; narrow hind margin of metapleural part also vellowish; legs with the coxae, greater part of front and middle femora and basal halves of middle ones blackish brown or black, the apices of femora, apical half of middle femora and the tibiae yellowish, the apical parts of front and hind tibiae, front and hind tarsi and apical half of middle ones, however, also darkened. Vestiture on frons comparatively sparse, gleaming very pale sericeous vellowish, that on each side anteriorly in the form of a conspicuous silvery tuft; that on sides of face and on antennae in form of very fine silvery tomentum; hairs on cone very sparse, minute and blackish; short, fine, dense hairs on occiput gleaming sericeous yellowish; hairs and bristles on thorax and scutellum above gleaming golden to reddish golden; that anteriorly on thorax, on propleural and prosternal parts, on mesopleuron, coxae and sides of tergite 1 sericeous whitish; hairs across hind margins of posterior tergites dark or black; scaling on sides of thorax above and scutellum, on pleurae, coxae and femora cretaceous white; that on disc of thorax composed of whitish and dull yellowish ones, that at base of thorax and scutellum more ochreous yellowish; scaling on abdomen above dull ochreous yellowish, becoming whitish on sides below and white on venter; scaling on tibiae appearing faintly yellowish. Wings vitreous hyaline, iridescent, the extreme base yellowish; veins dark brownish, becoming yellowish basally; microtrichial fringe rather well developed along hind border; middle cross vein just before middle of discoidal cell; squamae whitish, with a whitish fringe; halteres yellowish, their knobs rather small, very pale yellowish. Head with the interocular space on vertex in ♀ rather narrowish, distinctly less than 2 times distance between outer margins of posterior ocelli; frons and occiput shining, polished in appearance, the former shallowly depressed medially along centre; facial cone not prominently conically produced, more roundly curved downwards as in curvistoma, thus more roundly convex or bluntly parrot-beak-like; antennae shortish, joint 3 relatively short, more or less rapidly narrowed apically from broad base, more rapidly below, without any distinct slender apical part; proboscis about ·8 mm. long, confined to buccal cavity. Legs with about 2 spines on lower outer apical part of hind femora; front tibiae without any visible spicules; front claws much reduced.

From 2 PP (type in the South African Museum).

Length of body: about  $3\frac{1}{2}$ -4 mm. Length of wing: about  $3-3\frac{1}{2}$  mm.

Locality: North-western Karoo; Kenhardt Div. (Mus. Exp., Oct. 1939).

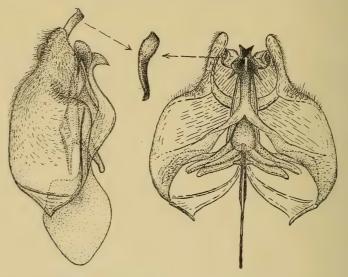
Nearest to *curvistoma*, from QQ of which it differs in having a smoother and more shining occiput and frons, bony yellowish facial cone, no reddish hind margins to tergites discally, darker femora, sparser hairs on frons, a silvery tuft on each side of frons anteriorly, smaller halteral knobs, etc.

The Q-paratype shows an abnormality in both wings in which the vein between second and third posterior cells is only indicated basally by a short stump from discoidal cell; the wings thus showing only three posterior cells.

## Plesiocera rufiventris n. sp.

Body, including scutellum, black; antennal joints 1 and 2 tending to be reddish above; a narrow spot on each side on upper facial part of genae along margins of eyes, humeral angles, postalar calli to a certain extent, hind margin of metapleural part, hind margins of all the tergites (more broadly in 2), sides of abdomen very broadly, venter, greater part of last sternite and apical part of hypopygium in 3 yellowish red; abdomen in 2 practically only with a discal row of black spots; legs with the trochanters and at least hind coxae reddish, basal halves of front and middle femora blackish, their apical halves, and almost entire middle ones in Q, yellowish red; hind femora yellowish red above and below, but their sides darkened; tibiae and basal parts of tarsi also vellowish red, but the hind tarsi and apical parts of the others darkened, more brownish. Vestiture with the hair on frons gleaming sericeous whitish in 3, more sericeous yellowish in Q; those on occiput slightly sericeous yellowish; those on thorax and on abdomen above also gleaming pale sericeous yellowish in  $\beta$ , more yellowish in  $\mathfrak{P}$ ; fine hairs on facial cone, tuft-like ones on propleural part, on mesopleuron and especially on sides of tergite 1, whitish; prealar, postalar and scutellar bristles gleaming reddish golden; fine hairs across hind margin of last sternite in 3 dark or blackish; sparse scaling on frons, denser bands on sides of thorax, that in a submedial stripe on each side on posterior half of thorax and continued on each side of scutellum, dense ones on front half of pleurae, especially sternopleuron, and that on legs cretaceous or pearly white and conspicuous; rest of scaling on thorax and scutellum finer, ochreous yellowish in ♂, more golden brownish in ♀, especially along inner margins of lateral white bands and in a broadish central band; scaling on abdomen above (where still indicated in specimens) yellowish, more whitish below in 3, with distinct dark or blackish ones on discal black parts; apical part of scutellum in 3 also with indications of some black scaling; a silvery pruinescence visible

in certain lights on inner side of antennal joint 3 and on genal part of facial region. Wings rather elongate, vitreous hyaline, iridescent, with a slight yellowish whitish subopacity at base and in costal cell; veins dark or brown, the first vein, false vein and veins at extreme base tending to be yellowish; axillary lobe and even alula slightly broader than in psammophila; middle cross vein just beyond middle of discoidal cell; apical bend of second vein rounded, not subangularly kink-like; squamae opaquely yellowish white, with a very fine whitish fringe; halteres pale yellowish, their knobs very pale. Head with the interocular space on vertex in  $\Im$  as broad as ocellar tubercle, in  $\Im$  a little more than 2 times width of tubercle; frons without a distinct, or even shallow, central depression in  $\Im$ , but with a very shallow one in  $\Im$ ; facial cone conically projecting; antennae with joints 1 and 2 short, but with 1 slightly longer and broader than 2, joint 3 more or less shaped like that of psammophila, narrowed from a broad base, but



Text-fig. 28. Side and ventral views of hypopygium of & Plesiocera rufiventris n. sp.

with the apical part distinctly more marked off as a slender part; proboscis about  $1-1\cdot 4$  mm. long, confined to buccal cavity. Legs without any spines visible on front and middle femora in 3, the middle ones in 9, however, with about 4 minute apical ones; hind femora with about 4 separated spines on outer apical aspect, of which the apical one is the longest; front tibiae without any visible spicules; front claws reduced, but not the same extent as in flavilabris and curvistoma. Hypopygium of 3 (text-fig. 28) with the beaked apical joints elongate, narrowish, slightly laterally compressed, ending apically in an upturned, sharp point, the joints slightly S-curved when viewed from above (see dorsal view in middle); aedeagus rather bluntly pointed, with a well-developed ventral process below, shaped as shown in figures, the apical part flattened out

into a concave ear-like flap or flange on each side, and arising from it is a central downwardly projecting keel-like pointed process.

From a ♂ and a ♀ in the South African Museum.

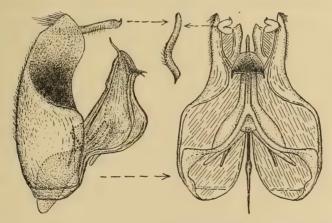
Length of body: about 6-7 mm. Length of wing: about  $5\frac{1}{2}$ - $6\frac{1}{4}$  mm.

Locality: Namaqualand: Knersvlakte (Mus. Exp., Nov. 1936) (holotype); Steinkopf (Smithers, Nov. 1941) (allotype).

Easily recognized and distinguished from the preceding species by the more extensively reddened abdomen, more reddish hind femora and different type of hypopygium.

## Plesiocera philerema n. sp.

Body, including scutellum, black; entire facial cone and head below ivory whitish, ivory yellowish to bony yellowish; antennal joints 1 and 2 also to a certain extent yellowish below; humeral angles, a spot above front coxae on



Text-fig. 29. Side and ventral views of hypopygium and dorsal view of beaked apical joint of 3 of Plesiocera philerema n. sp.

each side, area on each side below wing-bases, hind margin of metapleural part, extreme sides of tergites below, hind margin of last tergite in  $\mathfrak{P}$ , broad hind margins of sternites, or even entire venter, in both sexes pale yellowish red; trochanters and hind coxae also yellowish red; femora darkened or blackish to beyond middle, their apical parts yellowish; tibiae and basal parts of tarsi yellowish, the apical parts of latter darkened and last two or three joints blackish. Vestiture with the hairs rather sparse; hairs on frons basally, ocellar tubercle in  $\mathfrak{P}$ , greater part of frons and tubercle in  $\mathfrak{P}$ , sparsely on disc of thorax, prealar, postalar and scutellar bristles blackish brown to black; flattened hairs on front part of frons in  $\mathfrak{P}$  gleaming sericeous whitish; tufts on propleural part, mesopleuron, sides of tergite 1 and on hind coxae gleaming whitish; fine, somewhat

sparse, short hairs on facial cone blackish brown; fine ones on tergites predominantly blackish, but with numerous sericeous yellowish ones across hind margin of last tergite in 9; those on venter pale, sericeous yellowish across hind margin of last sternite in \( \text{?}; \) scaling on lower part of head behind eyes, densely on front half of pleurae, in two narrowish bands on disc of thorax and continued on to each side of scutellum, across extreme hind border of scutellum, on venter. in a distinct and conspicuous band along each side of abdomen, in a narrowish, central stripe or band on abdomen above and on legs cretaceous or chalky whitish; that on venter tending to be more creamy in some specimens; conspicuously dense scaling on frons in 3 also chalky white, that on frons in 2 vellowish; scaling on rest of thorax and abdomen above ochreous yellowish, that on sides of thorax also ochreous and not white as in preceding species; that on upper parts of hind femora (not occupied by white ones) tinted slightly vellowish. Wings distinctly greyish or greyish hyaline, not so glassy hyaline as in the preceding species, iridescent; veins dark brownish to blackish brown, the first vein and those at extreme base yellowish; alula and axillary lobe reduced like those of psammophila and related forms; apical forward bend in second vein subangular or angular; middle cross vein at about or just beyond middle of discoidal cell; squamae opaquely yellowish whitish, very sparsely fringed with very fine, short, pale hairs; halteres pale yellowish, with almost white knobs. Head with the interocular space on vertex in  $\beta$  as broad as tubercle, in Q about, or even a little less than, 2 times width of tubercle; frons with an indication of a slight or shallow, more or less transverse, depression at about middle, the base in  $\mathcal{P}$  appearing slightly convex; facial cone tending to be somewhat shiny, sharply and forwardly conical and pointed apically; antennae rather shortish, resembling those of curvistoma, joint 1 being a little longer and broader than 2, joint 3 rapidly tapering to a point from a broad base, ending in a very short style, bearing a stylet; proboscis about 1-1.25 mm. long, its labella rather pointed apically, slightly protruding beyond apex of buccal cavity. Legs without any visible spines on front and middle femora; hind ones with a well-developed inner row of about 5-7 distinct spines below and also a row of outer lower ones in  $\beta$ , and sometimes a few smaller ones in Q also, but often with only 1 longish apical spine on lower outer aspect; tibiae with the spicules and spurs on front ones wanting or vestigial; front claws much reduced or rudimentary. Hypopygium of 3 (text-fig. 29) with the apical angles of last sternite, opposing hypopygium, more produced, longer and more angular than in all the preceding species; basal parts with a deep, foveate depression on each side towards neck region apically, the apical dorsal margin of apical part of each basal part provided with some stoutish, spine-like hairs; beaked apical joints elongate, slender, curved and provided on outer side with a row of shortish hairs; aedeagus with the apical part slender and directed upwards, the aedeagus provided with a ventral process, the apical part of which is broadened, flattened and concave as shown in right-hand figure; lateral struts rod-shaped and basal strut shaped as shown in side and ventral views.

From 7 33 and 22 99 (types in the British Museum and paratypes in the South African Museum).

Length of body: about 5-64 mm.

Length of wing: about  $4-4\frac{1}{2}$  mm.

Locality: Southern Karoo: Matjiesfontein (Turner, 25–30 Oct. 1928) Locality: Southern Karoo: Matjiesfontein (Turner, 25–30 Oct. 1928) (types); Matjiesfontein (Turner, 16–20 Oct. 1928 and 1–18 Dec. 1928). West Cape: Bulhoek, between Clanwilliam and Klawer (Mus. Exp., Oct. 1950). Namaqualand: Knersvlakte (Mus. Exp., Oct. 1950). Koup Karoo: Teekloof in the Nieuveld Escarpment (Mus. Exp., Nov. 1935). Tankwa Karoo: Waterval on the Tankwa River (Mus. Exp., Nov. 1952).

Easily recognized and distinguished from all the preceding species by its entirely ivory or bony yellowish facial cone and lower part of head, absence of a band of cretaceous whitish scales on sides of thorax, more greyish wings and

different type of hypopygium.

#### Plesiocera pernotata n. sp.

Body predominantly black above; antennal joints 1 and 2, entire facial cone and head below yellowish; humeral angles and propleural parts above front coxae, area below wing-bases, greater part of metapleurae, postalar calli, hind margin of scutellum, narrowish hind margins of tergites above, sides of abdomen broadly or entirely, broad hind margins of sternites or almost entire venter and entire last sternite pale yellowish red; coxae, front and middle femora and all the tibiae yellowish; hind femora, excepting extreme apices, black; basal part of tarsi yellowish, but rest of tarsi becoming dark to blackish brown. Vestiture with the hair on head above, disc of thorax, across hind margin of tergite 1 on sides, fine hairs across hind margins of other tergites, even posteriorly on last two, and the very fine ones towards apex of facial cone above black; prealar bristles, however, gleaming yellowish red or reddish golden; hair on propleural part and dense hairs on sides of tergite 1 whitish, that on mesopleuron sericeous yellowish; fine hairs on occiput also sericeous yellowish to golden; scaling on body above, especially on abdomen, predominantly dull ochreous yellowish, that on disc of thorax with an indication of darkish, graphite-like ones towards sides and greyish ones medially; scaling on sides of head behind eyes ochreous yellowish; a conspicuous band of dense, flattened scaling on each side of thorax in front of wing-bases, dense, conspicuous ones on pleurae, especially on front part, those in a broadish well-marked-off band on each side of abdomen and scaling on venter conspicuously cretaceous or pearly white; that on legs also cretaceous white. Wings tending to be greyish or greyish hyaline as in *philerema*, iridescent; veins blackish brown, more brownish at base; alula and axillary lobe much reduced; forward bend in apical part of second vein kink-like; middle cross vein at about middle of discoidal cell; squamae subopaquely whitish, with a scarcely visible white fringe; halteres yellowish, their smallish knobs paler. *Head* with the hind margin of eyes broadly sinuous; interocular space on vertex in 2 only about 2 times width of tubercle; from

without any indication of a central depression; facial cone well developed, prominently projecting forward, its apical part rather sharp; antennae with the cup-shaped joint 1 longer and broader than joint 2, joint 3 gradually tapering apically, no distinct and slender apical part being marked off; proboscis about 1 mm. long, its labella rather shortish, confined to buccal cavity. Legs without any visible spines on front and middle femora, with about 4 or 5 slender and shortish ones on outer apical aspect of hind ones; tibiae with minute spicules visible on front ones, these much less conspicuous than those on middle tibiae; front claws reduced, though not so vestigial as in psammophila, curvistoma and philerema.

From a Q-type in the South African Museum.

Length of body: about 7 mm. Length of wing: about 5 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

Easily recognized by its bony yellowish facial cone and lower part of head. From  $\mathcal{P}$  of *philerema*, which it resembles, it may be easily distinguished by the yellowish front and middle femora, yellowish reddish hind border of scutellum, more extensively yellowish red venter, reddish metapleural part, presence of distinct white scaling on sides of thorax and absence of a narrow central band of white scaling on abdomen above.

#### Gen. Conomyza n. gen.

This new genus is erected to contain a species which on account of certain distinct characters cannot be retained in the genus *Plesiocera*, as defined in this memoir. In quite a number of characters it is, however, almost indistinguishable from the latter genus. Its chief characters, when compared with the latter, are as follows:

Body similarly shaped. Vestiture also composed of hairs and adpressed scaling, the former also comparatively or moderately sparse; the finer and longer ones disposed in the same way and on the same parts of body, those on abdomen also fine, shortish and inconspicuous; scaling on body, however, distinctly finer, more hair-like or pile-like, the individual scales, even along sides of thorax above, on pleurae, abdomen and on legs finer and more hair-like, giving the insects a distinctly more pily appearance than in species of Plesiocera; scaling on sides of thorax, even if denser than on disc, not contrastingly cretaceous whitish or ochreous yellowish and that on pleurae also not contrastingly white. Head as in Plesiocera, broader across eyes than across thorax; occiput (text-fig. 25, on right), however, distinctly shorter or narrower behind ocellar tubercle, the occipital lobes thus less prominent, the medial sulcation distinctly broader, more gap-like, the two lobes more broadly separated, the sulcus nearly as broad as width of ocellar tubercle; eyes with the hind margin as in Plesiocera (cf. text-fig. 26, a), not indented or subangularly emarginate, only broadly sinuous, separated above on vertex in both sexes, narrower in 33 and about as broad

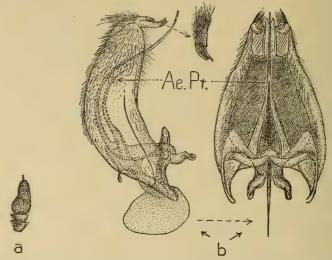
as ocellar tubercle, appearing slightly narrower than in Plesiocera, there being no small space between each lateral ocellus and inner eye-margin; interocular space in 22 a little less than 2 times width of tubercle; facial part also produced, distinctly cone-like, the conical part, however, less sharply pointed, slightly blunter, more rounded; antennae (text-fig. 30, a) as in *Plesiocera*, joint 3 gradually narrowed apically, more rapidly along lower part, no distinct slender apical part visible as in the case of some species of Plesiocera, ending apically in an almost indistinguishable terminal style, bearing a stylet; proboscis also short, confined to buccal cavity, its labella blunter apically. Wings as in Plesiocera; alula also much reduced and axillary lobe narrowish; middle cross vein at about or near middle of discoidal cell; second vein originating somewhat obliquely quite a distance away from base of third vein at a point about halfway between base of latter and middle cross vein; apical part of second vein also kinked. Legs with some spines on outer lower and apical aspect of hind femora and also with a row of distinct spines on inner lower aspect from base to beyond middle in 33; tibiae always with distinct, though small, spicules and spurs on front ones; front tarsi scarcely as long as front tibiae, usually shorter, with distinct spicules like those on middle tarsi, though smaller; front claws not markedly reduced or vestigial as in Plesiocera; pulvilli well developed. Hypopygium of 33 (text-fig. 30, b) rather large and conspicuous, with the opposing last sternite rather more elongate than in Plesiocera, its apical angles also angular; basal part divided dorsally into two by a suture, the apical part of each hairy and the base of each drawn out into a lobe-like process; beaked apical joints narrowish, curved inwards, more or less hollowed above, the edges more or less ridge-like, the inner one bearing an upwardly directed dentate process or spine near apex, the hinder part of each joint provided with hairs above (side and dorsal views in middle); aedeagus very elongate, slender, cylindrical and curved as shown in the side view, with a long ventral process (Ae. Pr.) arising near its base from middle part of aedeagal complex, the aedeagal part also produced basally and dorsally on each side into a lobe-like process (seen in outline in left-hand figure and also in right-hand one); ramus on each side from each basal part as shown in figures; lateral and basal struts well developed, shaped as shown in figures.

The genotype species is *Conomyza semirufella* n. sp. of which the typical form and a distinct variety show the following characters:

# Conomyza semirufella n. sp.

Body black above; facial cone and head below and antennal joints 1 and 2 pale yellowish to bony yellowish; humeral angles, propleural part above front coxae and metapleural part in  $\Im$ , entire or almost entire pleurae in  $\Im$ , postalar calli, especially in  $\Im$ , hind margin of scutellum in both sexes, hind margins of tergites, broad sides of abdomen, especially in  $\Im$ , entire or greater part of venter, entire hypopygium of  $\Im$  and greater part of last tergite in  $\Im$  pale yellowish or pale yellowish red; legs, including coxae, predominantly yellowish:

upper surfaces of hind femora in 3 however darkened, dark brownish; apical parts of tarsi and almost entire hind tarsi dark brownish to blackish brown; spines on femora and spicules on tibiae black. Vestiture with the hairs predominantly pale sericeous yellowish; those on front part of pleurae and on sides of tergite 1 more whitish; those on frons in 3 gleaming whitish, deeper yellowish in 4 and intermixed with darkish hairs; prealar, postalar and scutellar bristles slightly yellowish reddish to reddish; fine hairs on facial cone sericeous whitish in 3, in 4 with some blackish ones above towards apex; short and fine hairs across last two tergites yellowish or sericeous yellowish, but with some intermixed blackish brown ones medially above in both sexes; scaling predominantly



Text-fig. 30. (a) Left antenna of & Conomyza semirufella n. gen. and n. sp. (b) Side and ventral view of hypopygium of & of same.

dull yellowish to ochreous yellowish above, paler and more dull whitish to white on pleurae; that on sides of thorax above in front of wings denser, slightly more conspicuous and slightly paler than on disc; scaling on front part of frons in 3 white; that on venter in both sexes paler than on abdomen above, more whitish, but not conspicuously cretaceous white; scaling on legs whitish. Wings slightly greyish hyaline, iridescent, with a slight subopacity in costal cell and at base; veins dark brownish to blackish brown, bases of veins at base of wings yellowish; squamae subopaquely whitish, fringed with fine whitish hairs; halteres very pale yellowish, with pale lemon yellowish to almost white knobs. Head with the frons appearing slightly convex, without any indication of a central depression; antennae (text-fig. 30, a) with joint 1 a little longer than 2, joint 3 gradually tapering apically from a broad base, slightly more rapidly on lower side, the apical part not very slender; proboscis only about 1 mm. long. Legs with about 4 or 5 separated and slender spines on inner lower aspect of hind femora from base to beyond middle in 3 and with 2 or 3 small ones on outer apical aspect,

without any spines on inner aspect in  $\mathcal{Q}$ , but with 2 or 3 slender ones laterally in apical aspect; claws curved down apically. Hypopygium of 3 (text-fig. 30, b) as described for genus, with the medial ventral aedeagal process (Ae. Pr.) in form of a semi-membranous or softly chitinized trough-like structure, the ventral part of which is hollowed out trough-like and the apical part narrowed, pointed and curved like the cylindrical aedeagus.

From a  $\eth$  and a Q in the South African Museum.

Length of body: about 6 mm. Length of wing: about  $4\frac{1}{2}$  mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This species is no doubt variable in colour and the colour of the vestiture. Some 3-specimens differ from the typical 3 to such an extent that they may be referred to a distinct variety which is characterized as follows:

## Conomyza semirufella var. karooana n.

Body predominantly black, less extensively reddish; rim of buccal cavity, especially below eyes or sometimes greater part of face, humeral angles, hinder part of metapleurae, sides of tergite 1, sides of abdomen below, greater part of venter, last sternite, broad hind margin of last tergite and to a certain extent also narrow hind margins of tergites 5 and 6 laterally pale yellowish reddish to a variable extent; antennal joints 1 and 2, greater part of facial cone, entire scutellum, greater part of pleurae and abdomen more extensively black; legs as in the typical form. Vestiture with the bristly hairs on disc of thorax and the postalar and scutellar bristles darker than in the typical 3, more blackish brown to black in certain lights; prealar bristles, however, appearing more yellowish; some short hairs across hind margin of tergite 1 laterally also blackish; the longer hairs across hind margins of tergites 6 and 7 composed of sericeous yellowish and conspicuously intermixed black hairs; scaling on frons dense and chalky white; that on body above tinted yellowish, appearing dull yellowish, creamy or greyish yellowish. Wings appearing slightly more greyish than in typical form. Head with the interocular space on vertex also as broad as ocellar tubercle; antennal joint 3 nearly or quite 2 times as long as 1 and 2 combined, almost ovate in outline, relatively much broader than in typical 3, the upper margin appearing more curved. Legs with about 5-7 slender spines, from base to beyond middle, on inner aspect of hind femora and with a few much smaller ones on outer apical aspect. Hypopygium structurally identical with that of typical 3.

From 6 33 (type of variety in the South African Museum).

Length of body: about 4-7 mm. Length of wing: about  $3\frac{1}{2}$ -5 mm.

Locality: Koup Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952) (type). Tankwa Karoo: Kleinbrak (Mus. Exp., Nov. 1952); Laingsburg (Mus. Exp., Feb. 1938); Rooinek Pass (Mus. Exp., Oct. 1952).

#### Gen. Coryprosopa n. gen.

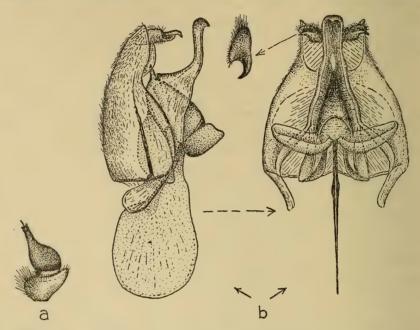
Superficially this new genus resembles the genus *Plesiocera* as defined in this memoir. Compared with the latter its essential characters are as follows:

Body and legs more extensively reddish. Vestiture with the erect hairs distinctly longer and more conspicuous, those on abdomen and also across hind margins of all the tergites distinctly longer, giving the abdomen a distinctly hairy appearance, the individual hairs distinctly more bristle-like; scaling on body very much finer, even finer than in Conomyza, the individual scales very fine, hair-like or pile-like, dense on body above, but sparse on front half of pleurae, much sparser than in Plesiocera or even Conomyza; greater part of pleurae dull, due to a very fine grevish tomentum. Head with the medial sulcation behind ocellar tubercle on occiput narrowish, cleft-like, not so broad as in Conomyza; eyes with the hind margin only very feebly sinuous at about middle and, as in the two preceding genera, not subangularly indented or markedly emarginate, separated above on vertex in both sexes, the space as broad as ocellar tubercle in 33 and a little more than 2 times as broad as tubercle in  $\mathfrak{P}$ ; antennae (text-fig. 31, a) with joint I very much broader and more distinctly cup-shaped, lodging transverse joint 2, joint 3 very much more rapidly narrowed apically than in any species of Plesiocera, the base thus bulbular and the apical part slender, the entire joint more or less bulb-shaped; facial region prominently conical and produced, the base of face appearing slightly more transversely depressed; buccal cavity long and deep; proboscis confined to length of buccal cavity, its labella rather long, quite or nearly half as long as rest of proboscis, slightly pointed apically and spinulate. Wings comparatively shortish in relation to body; two submarginal cells present; apical part of second vein with a forward kink; alula and axillary lobe much reduced as in Plesiocera; base, costal cell and basal half of first basal cell and in QQ also greater part of marginal cell and entire first basal cell infused with yellowish brownish and also with distinct spot-like infusions on apical cross veins of basal cells (infuscations in wings and infusions not found in Plesiocera); costal cell comparatively longer than in the preceding two genera; base of second vein bent down perpendicularly or at right angles to third vein, giving off a basally directed stump at this angle; knobs of halteres relatively small, scarcely or only a little broader than broadest part of stem. Legs with spines present on all the femora, especially in QQ, also with a few spines on inner lower basal part of hind femora in 33 and also with some lateral apical spines in both sexes; tibiae with the spicules and spurs developed on all, but those on front ones smaller; front tarsi distinctly shorter than front tibiae, provided with spicules as in Conomyza; claws curved down apically, the front ones, though smaller than the others, not markedly reduced or vestigial as in *Plesiocera*; pulvilli well developed. *Hypopygium* of 3 (text-fig. 31, b) not so exposed as in *Plesiocera*, withdrawn into apical part of abdomen; last opposing abdominal sternite relatively shorter than in latter genus, its apical angles also slightly pointed and subprominent; basal parts of hypopygium itself divided into two parts by a dorsal dividing suture, each part with a basal

tongue-like lobe and apical angle of each basal part not produced to the same extent as in *Plesiocera*; beaked apical joints entirely different, broadened in basal half, produced apically into an outwardly curved beak, the outer apical angle angular (see dorsal view in middle figure), the dorsum covered with hairs, especially towards base; aedeagus with the apical part shortish, produced basally on dorsal aspect into a prominent process on each side as shown in figures, the lateral ramus on each side from each basal part coalescing and forming an elongate ventral process, the ventral part of which is hollowed out and the apex slightly recurved (see side and ventral views in figures); lateral struts very well developed, more strongly developed than in *Plesiocera*; basal strut also longer and broader. The genotype and only known species is *Coryprosopa lineata* n. sp.

## Coryprosopa lineata n. sp.

Body mainly reddish to reddish brown, even frons reddish brownish to reddish yellow; antennal joints 1 and 2 also yellowish red to reddish brown, joint 3 sometimes darkened above; facial cone and head below ivory or boneyellowish to yellow, sometimes reddish; ocellar tubercle and usually base or basal half of frons dark brownish or blackish to a variable extent, sometimes entirely yellowish in some 33; occiput blackish to about or more than half-way down behind eyes; thorax above reddish right round, the disc however black or dark, but with two broadish longitudinal bands of fox-reddish scales separating three broad bands of bluish grey pruinescence covering the dark background, or sometimes with two broad black bands only; humeral angles and anterior spiracular area pale yellowish; scutellum with a black, central fascia, varying in width, sometimes wider apically; abdomen with a conspicuous, longitudinal, black band on each side above, broad basally on tergite 2, narrowing and thinning out posteriorly, with a narrower and sometimes less conspicuous black band along each side, more evident in some specimens; hind margins of tergites and sternites tending to be paler, more yellowish than general reddish brown background and their extreme edges pale yellowish; legs mainly yellowish or pale yellowish red, the hind femora in & slightly darkened above apically, the tibiae and apices of femora usually distinctly paler yellowish in both sexes; middle of apical margins of trochanters below black; tarsi pale yellowish, last joint brownish; spines and spicules on legs and apical half of claws black. Vestiture with the bristly hairs mainly sericeous yellowish to deep golden yellowish; those on frons and face sericeous yellowish or almost white to golden in 3, golden to deep golden in Q, sometimes more reddish golden; tuft on propleural part, on mesopleuron and on sides of tergite 1 paler, pale sericeous yellowish; bristly hairs on abdomen golden to fulvous or reddish golden; fine scaling on body above dense, mainly creamy to dull ochreous yellowish, especially on disc of thorax, where there are also the two submedial bands of rufous brownish or fox-reddish scaling, especially in ♀; similar reddish brown scaling along sides of thorax to posterior calli; scaling on black abdominal bands brownish to reddish brown in contrast with the more ochreous yellowish ones on rest of abdomen above; fine scaling on venter a little or scarcely paler than above; sparse scaling on lower part of mesopleuron and upper part of sternopleuron dull yellowish whitish; that on legs pale dull yellowish to yellowish white; pruinescence on pleurae and to a certain extent also on venter greyish yellowish or bluish grey. Wings vitreous hyaline, iridescent, the base, costal cell and basal half of first basal cell in  $\Im$  and in  $\Im$  also entire first basal cell, basal part or more than basal half of marginal cell and even base of first submarginal cell yellowish



Text-fig. 31. (a) Dorsal view of left antenna of  $\mathcal{D}$  Coryprosopa lineata n. gen. and n. sp. (b) Side and ventral views of hypopygium of  $\mathcal{S}$  of same species.

brownish; distinct spot-like infusions on apical cross veins of basal cells and at base of third main vein; veins reddish brownish to dark brown, greater part of first vein, basal part of third and greater part of fifth more yellowish; middle cross vein at about or scarcely beyond or sometimes even distinctly beyond middle of discoidal cell; squamae opaquely yellowish to yellowish white, fringed with sericeous whitish hairs; halteres pale yellowish red, their knobs pale yellowish to almost white, the anterior upper part sometimes tinted reddish brownish. Head as described for genus, with an indication of a slight or shallow depression in front of ocellar tubercle in some  $\varphi\varphi$ ; proboscis about 1–1·5 mm. long; palps slender, pallid, at least half as long as proboscis. Legs with some irregularly arranged spinules on front femora below towards base, with about 4–7 spines in a row on outer lower part of middle femora; hind femora with about 3–8 shortish spines on outer part, also with about 3–9 longer ones in basal

half or from base to apex on inner lower part in 3 and also with some lateral spines and spinelets along outer upper apical part in both sexes. Hypopygium of 3 (text-fig. 31, b) as described for genus.

From 19 33 and 22 99 (types in the South African Museum and paratypes in the British Museum).

Length of body: about  $5\frac{1}{2}$ -9 mm. Length of wing: about  $4\frac{1}{2}$ - $6\frac{1}{2}$  mm.

Locality: Moordenaars Karoo: Lammerfontein and Swanepoel (west of Laingsburg) (Mus. Exp., Oct. 1952) (types). Koup Karoo: Koup Siding (Mus. Exp., Oct. 1952); Klaarstroom near Prince Albert (Mus. Exp., Oct. 1952); Matjiesfontein (Turner, 22–3 Oct. 1928). Namaqualand: Knersvlakte (Mus. Exp., Oct. 1939); Kamieskroon (Mus. Exp., Nov. 1936); Bowesdorp near Kamieskroon (Mus. Exp., Nov. 1931); Kamieskroon-Springbok (Mus. Exp., Oct. 1939); Nigramoep (Smithers, Oct. 1941); Klipvlei near Garies (Mus. Exp., Nov. 1931). Bushmanland: Pofadder (Mus. Exp., Oct. 1939); Naib between Springbok and Pella (Mus. Exp., Oct. 1939); Aggenys (Mus. Exp., Oct. 1939); Nieuwoudtville (Mus. Exp., Sept. 1941). Great Namaqualand in South-West Africa: Aus (Turner, 8–30 Jan. 1929).

This easily recognizable species appears to be variable in the extent to which the black on body is developed. The 3-paratype from Aggenys in Bushmanland differs from the more typical 33 in having at least the basal half of frons darkened as in 99 and the black on occipital part, disc of thorax and scutellum and on abdomen distinctly more extensive, there being no reddish across base of thorax and on sides of scutellum; abdomen above almost entirely black, the reddish represented medially on hind margins of tergites as a row of spots and as a narrowish stripe on each side and even the pleural parts distinctly darker than in more typical 33 and the frons too has darkish hairs.

# Gen. Prorostoma n. gen.

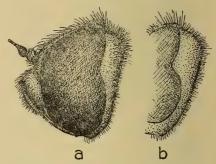
(Syn. = Plesiocera Bezzi, nec Macquart, p. 81, Broteria (Ser. Zool.), xx, fasc. ii, 1922.)

This genus is based on a South African species which Bezzi described as *Plesiocera integra*. From some representatives of both sexes of this species in the collections before me, it is quite evident that *integra* cannot be placed in the genus *Plesiocera* as defined in this revision on its South African representatives. When compared with the description, and especially the illustration of the wing, of *Plesiocera algira* Macq. given by Engel (p. 391, *Die Fliegen d. Pal. Reg.*, lief. 91 (Bombyliidae), pl. vii, fig. 94, 1935), it also appears, especially in its wing-characters, not to be generically identical with the true Palaearctic *Plesiocera*. Pending the taxonomic elucidation of the generic identity of the various Palaearctic and Ethiopian species belonging to the *Plesiocera*-group, *integra* Bezz. is provisionally referred to a new and separate genus of which it constitutes the genotype. Compared with *Plesiocera*, as defined in this revision

and as based on the descriptions and figures given for *Plesiocera* s. str., and also with related genera belonging to this group, the chief characters of this new genus are as follows:

Body somewhat elongate as in Plesiocera, the abdomen, especially in  $\varphi\varphi$ , however, relatively less elongate and proportionally broader. Vestiture composed of erect bristly hairs and dense scaling, the erect hairs comparatively denser and more conspicuous than in Plesiocera or even Coryprosopa; that on frons, disc of thorax and also on facial cone distinctly denser and more conspicuous than in Plesiocera, and denser though shorter than in Coryprosopa, denser, longer, and more conspicuous on venter in  $\delta\delta$  than in  $\varphi\varphi$ ; hairs on body above and on abdomen giving the insects a more hirsute appearance; dense scaling composed of comparatively finer and narrower scales than in Plesiocera, though not so fine and pile-like as in Coryprosopa; that on each side of thorax, even if slightly denser

than on disc, not much broader or flatter and not markedly contrasting band-like as in *Plesiocera*; that on front half of pleurae dense as in *Plesiocera*, not very sparse as in *Coryprosopa*. *Head* also broader across eyes than across thorax; hind margin of eyes (text-fig. 32, a) distinctly, though shallowly, emarginate at about middle, this indentation more distinct than in any of the preceding genera (cf. text-fig. 26, a); occiput well developed as in *Plesiocera*, the medial sulcation deep and cleft-like; interocular space on vertex in 33 a



Text-fig. 32. (a) Side view of head of  $\bigcirc$  Prorostoma integrum (Bezz.). (b) Hind margin of eye of  $\bigcirc$  Epacmoides biumbonatum (Bezz.).

little broader than ocellar tubercle and, according to Engel's description (p. 391, loc. cit.), not so broad as in *Plesiocera algira*; space in 99 relatively broader than in 99 of the three preceding genera, slightly more than 2, to almost 3, times as broad as tubercle; frons, especially in QQ, thus appearing broader, distinctly somewhat centrally depressed before tubercle in 99, the basal part also shining; antennae (text-fig. 32, a) as in the other genera, with joint I short, broad, somewhat cup-shaped, broader and slightly longer than transverse joint 2, joint 3 also much longer than 1 and 2 combined, rather rapidly narrowed apically from the broad base, the apical part or half thus distinctly slender, the joint club-shaped, ending apically in a distinct, though shortish, terminal joint-like element or style which bears no visible stylet as in the other genera (such a stylet absent, vestigial or very insignificant); facial region also conically prominent, but the cone distinctly and comparatively shorter, more rounded, and more tumid or convex in appearance, its apical part more rounded (text-fig. 32, a); proboscis short, stoutish, confined to length of buccal cavity, the labella broadish, ovate, and distinctly spinulate; palps comparatively shorter and stouter than in the other genera, not visibly jointed, but also with longish and fine hairs below. Wings with the same type of

venation; second main vein similarly bisinuate apically, at first bending forward and then backward, the forward bend, however, more rounded, and the backward bend deeper, this vein originating nearer middle cross vein at, or almost at, right angles; vein between discoidal and third posterior cells very sinuous, bending backwards into third posterior cell to a much greater extent than in Plesiocera; alula distinctly more developed, broader, more conspicuous, more rounded or lobe-like than in any of the preceding genera; axillary lobe also distinctly broader, more lobe-like; squamal fringe composed of distinctly longer, denser and more conspicuous hairs than in Plesiocera. Legs with distinct spines on all the femora below and, in 33, also with some spines on lower inner aspect of hind femora; tibiae with spicules and spurs developed on all, those on front ones, however, smaller, much as in Coryprosopa and Conomyza; front tarsi slightly shorter than tibiae in 33, but much shorter in 99, not longer as in Plesiocera; front claws only slightly smaller than middle ones, not vestigial or very much reduced as in Plesiocera. Hypopygium of 33 (text-fig. 33) with the apical angles of the opposing last sternite also slightly angularly prominent; basal parts of hypopygium also divided into two parts by an impressed suture, each covered dorsally with shortish hair, the base of each produced into a lobe-like process and the apical neck-like part narrower and well marked off from basal two-thirds, the outer apical angle not prominently produced as in Plesiocera; beaked apical joints elongate, curved outwards near apex as shown in middle (dorsal view), without any distinct or visible hairs above; aedeagus shortish apically, passing basally and on dorsal aspect into a broadish flattened process on each side (see right-hand figure), with the lateral ramus on each side from each basal part fused together bandwise, across aedeagal complex, to form a ventral aedeagal process, prolonged on each side into a ventrally directed process (see lower middle figure) the apical part of which is flattened and broadened; lateral and basal struts as shown in side and ventral views in the figures.

The genotype and only known species of this genus is *Prorostoma integrum* (Bezz.) which Bezzi described under *Plesiocera*.

# Prorostoma integrum (Bezz.)

(Bezzi, p. 81-2, Broteria (Ser. Zool.), xx, fasc. ii, 1922 (as Plesiocera); Bezzi, p. 298, Konowia, iv, 1925, in key to known species of Plesiocera.)

Some  $\Im \Im$  and  $\Im \Im$  in the collections before me agree with Bezzi's description of this species. Moreover one  $\Im$ -specimen from Willowmore is labelled as 'Plesiocera integra Bezz.' and in red also as 'Bezz. 24', indicating that it was a duplicate of the same species (a  $\Im$ -specimen) sent to Bezzi by the late Dr. Brauns. As Bezzi, however, based his description on the solitary  $\Im$ -specimen, a supplementary description of both sexes is given here:

Body, including scutellum and antennae, predominantly black; edges of buccal rims on the inside pallid or ivory yellowish; narrow hind margin of metapleural plate, narrowish or broadish hind margins of tergites, extreme sides



of veins at extreme base yellowish; middle cross vein a little before middle of discoidal cell; squamae subopaquely whitish or yellowish whitish, their fringes whitish; halteres yellowish, the knobs very pale yellowish white to whitish. Head (text-fig. 32, a) as described for the genus; interocular space on vertex in 33 as wide as ocellar tubercle plus width of one ocellus on each side; interocular space in 99 varying in width from a little more than 2, to almost 3, times width of tubercle; frons with the margins less rapidly diverging anteriorly in 99 than in 33, its integument in 99 distinctly shining in basal half at least, the apical part slightly convex; facial cone (side view in text-fig. 32, a) as described for genus; antennae and proboscis as described, the latter about 1-1.4 mm. long.

Legs with an inner and outer row of small spines on lower aspect of front and middle femora; hind femora with about 5-9 spines on outer lower part and, in 33, with a row of about 6-9 fine spines on inner lower part and with a few small lateral spines or spinelets and some dorsal apical spines above in both sexes; claws tending to be distinctly more gradually curved to apex or more sickle-shaped than in other species of the Plesiocera-group. Hypopygium of 3 (text-fig. 33) as figured and described for the genus.

In the British, Transvaal and South African Museums.

Length of body: about  $4-9\frac{1}{2}$  mm. Length of wing: about  $4-8\frac{1}{2}$  mm.

Locality: Little Karoo, Great Karoo, Koup Karoo, Namaqualand, Bushmanland, North-western Cape and Great Namaqualand in South-West Africa.

This species is apparently very widely distributed over the greater part of the semi-arid regions in South Africa, and, judging from the series before me, is variable in size and in certain slight details. A large  $\mathfrak{P}$ , from Aus in South-West Africa, differs from the more typical  $\mathfrak{P}$  in having the yellowish hind margins of the tergites broader, the tibiae and tarsi paler, and the first main vein, the third vein and even basal halves of fourth and fifth main veins paler yellowish. In the typical form, described from the southern part of the Karoo, the tibiae tend to be entirely very dark or even blackish.

Gen. Epacmoides n. gen.
(Syn. = Plesiocera Bezzi, nec Macquart.)

In 1922 Bezzi (pp. 81 and 83, Broteria (Ser. Zool.), xx, fasc. ii) referred two species, integra and biumbonata, to the genus Plesiocera and on p. 81 (loc. cit.) distinguished these in a short key. In another synoptic table (p. 298, Konowia, iv, 1925) he again incorporated these two South African forms, but this time compared them with the three known Palaearctic species of Plesiocera. As stated under the preceding genus Prorostoma, there are reasons for believing that 'Plesiocera integra' does not belong to the genus Plesiocera as defined in this memoir and as based on descriptions of the genotype Plesiocera algira Macq. The other species, biumbonata, though never described, is nevertheless recognizable from

the few distinguishing characters given in Bezzi's keys and also appears not to belong to *Plesiocera*. Though apparently agreeing with *Prorostoma integrum* (Bezz.) in many respects, *biumbonata* nevertheless differs in some salient features which necessitate its inclusion in a separate and new genus. This new genus, when compared with the preceding genus *Prorostoma*, has the following characteristics:

Body very similarly shaped, the abdomen in QQ also tending to be broader than in Plesiocera. Vestiture with the erect bristly hairs developed to the same extent and as dense, and thus more developed than in Plesiocera, the hairs on venter in 33 also longer than in 99; scaling on body very similar and as dense, but with apparently broader scaling on sides of thorax in front of wings, on postalar calli, sides of scutellum, transversely across hind margins of tergites and sometimes even on frons in both sexes. Head with the occiput as in Prorostoma; hind margin of eyes (text-fig. 32, b), however, more distinctly and more deeply subangularly indented; interocular space on vertex in 33 about as broad as, or a little broader than, ocellar tubercle; space in QQ about, but sometimes little broader than, 2 times distance between outer margins of posterior ocelli; antennae with the first joints slightly more separated basally, otherwise very similar to those of Prorostoma, joint 3 also as rapidly narrowed apically and club-shaped; facial cone longer, larger, less rounded, more conically pointed or conically pyramidal, much more like that of Plesiocera, the surface with distinctly less conspicuous and much shorter hairs than in Prorostoma; from sin QQ with a more distinct central depression in front of front ocellus; proboscis also short, confined to buccal cavity; palps very similar. Scutellum usually very characteristic, distinctly different from that of any other genus in this group, rather short, transverse, somewhat tumid, its apical margin centrally and perpendicularly incised, notched, or indented to a variable extent, thus rendering the scutellum bilobate, the lobes, however, not long, each with its hind border smooth, polished in appearance and shining, the indentation itself with conspicuous pale or cretaceous whitish scaling. Wings as in Prorostoma, well developed and broadish; alula and axillary lobe also well developed, lobe-like; venation as in Prorostoma. Legs usually without any spines, or only with some minute spinelets basally, on front femora below; middle and hind femora with comparatively fewer spines, only a few longish ones being present on outer apical aspect of hind femora and even in 33 without any spines on inner lower part; tibiae also with spicules on front ones as in Prorostoma; front tarsi shorter than front tibiae; front claws not vestigial or very much reduced; pulvilli well developed. Hypopygium of 33 (textfigs. 34 and 35) with the lateral apical angles of opposing last sternite also somewhat angular; basal parts of hypopygium itself differing from that of Prorostoma in not having the apical part so well marked off; beaked apical joints more like those of Coryprosopa, not narrowish throughout, but with an outer angular apical part; aedeagus without a complex, ventral, aedeagal process, the process, if present, in form of a forwardly projecting ledge or a pair of stylets; basal strut sometimes with a distinct, shelf-like, lateral ledge present on each side.

The distinct and characteristic bilobate or notched scutellum and the rather deeply and subangularly indented hind margin of the eyes distinguish this genus very easily from all the other genera in the Plesiocera-group dealt with in the preceding pages. The bilobate nature of the scutellum is reminiscent of Othniomyia (Part I of this revision, p. 707, Ann. S. Afr. Mus., xxxiv) and of the American genus Geminaria Coq. In this respect it also agrees with some species of Aphoebantus, such as the Palaearctic bituberculatus Beck. and the Ethiopian bilobatus Bezz. According to descriptions there is no doubt that this new genus resembles or is closely related to the American genus Epacmus Ost. Sack. (p. 142, Biolog. Centr. Amer. Dipt., i, 1887) n. n. for Leptochilus Lw. (p. 78, Berl. Ent. Zeit., xvi, 1872). The American genus, however, appears to differ in having a longer proboscis, more widely separated antennae, more onion-shaped third antennal joints, no pulvilli, etc. There is no doubt that Epacmus also belongs to the Plesiocera-group of genera and it was even placed as a synonym of Plesiocera by Engel (p. 390, Die Fliegen d. Pal. Reg., lief. 91, 1935). At present only four species of Epacmoides and their varieties are represented in the collections before me. These four species, of which biumbonatum (Bezz.) is the genotype, may be separated as follows:

- 1. (a) Scutellum broad, transverse, broad apically, its central perpendicular apical incision deeper, more gap-like, the scutellum thus distinctly more bilobate apically; facial cone distinctly more convexly rounded, its dorsum more convexly rounded in profile, the cone delimited from frontal and antennal part by a more distinct and deeper transverse groove-like depression at its base, the cone also duller and with more pubescence; scaling on thorax and pleurae distinctly much denser.
- 2. (a) Scaling on frons wanting or only very sparsely present, usually only present as a small tuft on each side anteriorly; that on disc of thorax and scutellum and even in more or less two longitudinal bands on abdomen above with much or very distinct and deeper ochreous yellowish, ochreous brownish to brownish ones; bristly hairs on frons denser, more conspicuous and brownish or brownish golden; fine hairs on occiput and hairs on thorax and scutellum above tending to be distinctly darker, gleaming deeper reddish or brownish golden.
- 3. (a) Red or reddish on body and legs less developed, the red hind margins of tergites discally and laterally and venter in both sexes distinctly much narrower and less extensive; apices of femora less broadly reddish yellow and last tibiae tending to be darker, more brownish, especially above; prealar, postalar and scutellar bristles either whitish, pale sericeous yellowish or very pale yellowish; abdomen in  $\varphi$  without any or with paler or less yellowish scaling.

- (b) Red or reddish on body and legs, especially in 3, more developed, more extensive, the yellowish red or reddish hind margins of tergites discally above and especially on sides below and on venter much broader and more extensive, the sides and venter in 3 often almost entirely reddish; apices of femora usually more broadly reddish yellow and last tibiae pale or yellowish like the others; prealar, postalar and scutellar bristles gleaming more reddish golden; abdomen in 2 at least with more ochreous scaling above.

  \$\frac{G}{2}\$ albifrons var. ballidulum n. (p. 131)
- - (b) Apical incision in scutellum very much fainter, scarcely evident and then only in certain lights; tibiae very much darker, brownish to almost black, especially hind ones; hind margins of tergites not reddish or yellowish; hairs on face sparser, shorter, mainly dark and even on sides with fewer pale ones; bristly hairs on sides of thorax and in mesopleural tuft more whitish or only yellowish. . . . \$\phi\$ cryptochaunum n. sp. (p. 133)

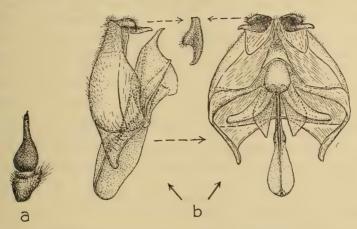
## Epacmoides biumbonatum (Bezz.)

(Bezzi, pp. 81 and 83, Broteria (Ser. Zool.), xx, fasc. ii, 1922; p. 298, Konowia, iv, 1925 (as Plesiocera biumbonata).)

There is no doubt that the numerous specimens, both  $\partial \partial$  and  $\varphi \varphi$ , in the collections before me, represent this species to which Bezzi referred in the synoptic keys given in the references cited above. As this species was never described in detail, a fuller and more complete description is appended:

Body, including antennae, facial cone and scutellum, predominantly black; rims of buccal cavity from about middle to apex, especially on inner side, pallid or yellowish; narrow hind margin of metapleural plate, hind margins of tergites, sides of tergites below, especially in 3, broadish hind margins of sternites and, in some 33, even entire venter, broadish hind margins of last tergite and sternite in ♀, and almost or the entire last sternite in ♂ yellowish reddish to pale reddish; coxae and greater part of femora black, apices of femora or even apical third of front and middle ones, the tibiae and greater part of tarsi pale yellowish reddish or luteous, the apical parts of tarsi darkened, the last three joints blackish; apical parts of claws black; spines and spicules on legs black. Vestiture with the erect bristly hairs on frons fairly dense and conspicuous in both sexes, distinctly golden to brownish golden, those in 3 with a more distinct brownish tint, becoming even darker on sides anteriorly; fine hairs on occiput, especially medially, also gleaming yellowish golden to faintly brownish golden; bristly hairs on disc of thorax gleaming deep reddish golden to brownish golden, appearing predominantly reddish brownish in certain lights; prealar, postalar and scutellar bristles gleaming deep reddish golden; tuft-like hairs just above front coxae and on humeral parts, mesopleural tuft, dense hair on sides of tergite 1 and hairs on venter (more numerous and conspicuous in 3) gleaming sericeous whitish, but those in mesopleural tuft in some 22 tinted slightly yellowish at their bases; bristly hairs on last coxae sericeous whitish; shortish bristly hairs, chiefly across hind margins of tergites, on

abdomen above gleaming sericeous yellowish to golden in  $\circlearrowleft$ , deeper yellowish or more brownish or reddish golden in  $\circlearrowleft$ , even appearing brownish in certain lights; scaling on body above and pleurae dense, that on frons practically wanting, very sparse in both sexes, represented only as a small pale or yellowish tuft on each side anteriorly; that on facial cone also sparse, pale ochreous yellowish to dull whitish and somewhat scattered; that behind eyes denser and whitish; that on pleurae, sides of thorax and sides of scutellum, that vertically down scutellar indentation and to a great extent on disc of thorax conspicuously



Text-fig. 34. (a) Side view of left antenna of 3 of Epacmoides biumbonatum (Bezz.). (b) Side and ventral views of hypopygium of same.

cretaceous or chalky whitish; some finer scales more or less transversely across middle of thorax discally and in two indistinct, submedial, posteriorly directed, shortened bands from transverse band, the dense scaling discally on scutellum, that more or less arranged in a broadish, indistinct, longitudinal band on each side of abdomen above and to a certain extent also transversely across hinder parts of tergites yellowish, ochreous yellowish to ochreous brownish; scaling on abdomen, however, predominantly whitish, that transversely across hind margins of tergites and on entire venter cretaceous or chalky whitish, much cretaceous whitish scaling also on hinder parts of pleurae; scaling on legs predominantly cretaceous whitish, that on upper surfaces of front and middle femora sometimes tinted yellowish to ochreous yellowish. Wings glassy hyaline, iridescent, with a very slight whitish subopacity in costal cell and at base; space between false vein and first main vein in costal cell opaquely yellowish; veins brownish, dark brownish to even blackish brown, the basal part of first vein, costal vein and vein at base yellowish, with distinct dark or blackish small spot-like infusions on first main vein at base of first basal cell and at base of third main vein or fork of first and third veins; forward bend in apical part of second main vein fairly deep and rounded; vein between submarginal cells tending to be bent at right angles to third vein, sometimes provided with an indication of a short stump at this bend; middle cross vein usually just before middle, sometimes tending to be at about middle, of discoidal cell; squamae opaquely pale yellowish white or yellowish, fringed with whitish hairs; halteres very pale vellowish, the knobs almost white. Scutellum transverse, broadish, somewhat tumid, bilobate, the incision gap-like and distinct, the hind borders of lobes shining. Head with the hind margins of eyes indented as figured (text-fig. 32, b); interocular space on vertex in 3 as broad as tubercle; space in 2 about, or a very little less than, 2 times distance between outer margins of posterior ocelli; frons more rapidly diverging apically in 3, the integument somewhat shining in both sexes, slightly and shallowly depressed centrally in front of front ocellus in Q, frons in both sexes, however, tending to be slightly convex; antennae with the cup-shaped joint 1 broader and only slightly longer than transverse joint 2, joint 3 (text-fig. 34, a) club-like, its basal part somewhat bulb-like and the apical part slender; facial cone somewhat convexly rounded, the transverse basal depression in front of antennae appearing deep and groove-like. Legs with about 2-3 spines on outer lower aspect and sometimes 1 or 2 on inner lower part of middle femora; hind femora with about 2-5, usually about 3, longish spines on lower outer apical part. Hypopygium of 3 (text-fig. 34, b) with the lateral ramus on each side from each basal part not produced into a ventral process below aedeagus.

From 12 33 and 19 99 in the South African Museum.

Length of body: about  $3\frac{2}{3}$ -7 mm. Length of wing: about  $4-6\frac{2}{3}$  mm. Locality: Karoo and Namaqualand.

This species is very variable in size and to a much lesser extent in the development of the red or reddish on body.

# Epacmoides albifrons n. sp.

This species is structurally almost inseparable from biumbonatum, but there are nevertheless certain very distinct differences which necessitate a separate specific status. From biumbonatum it differs in the following respects:

Vestiture with very characteristic, compact, dense, flattened, cretaceous whitish scaling on frons in both sexes, but more especially in 3, with slightly more whitish scaling on facial cone; that on thorax, scutellum and abdomen above predominantly or even entirely cretaceous or chalky whitish, yellowish scales being absent or, if indicated, they are not conspicuously ochreous yellowish or brownish; bristly hairs on frons distinctly fewer and paler, less deeply yellowish or more whitish in both sexes; fine hairs on occiput tending to be more whitish; bristly hairs on disc of thorax and scutellum also tending to be paler, more pale sericeous whitish to yellowish; prealar, postalar and scutellar bristles gleaming paler sericeous yellowish to paler reddish golden or golden; shortish bristly hairs on abdomen, however, also brownish, those discally even tending to be darker, appearing blackish brown in some specimens, the apices of individual

hairs paler, more sericeous yellowish; hairs on venter and tust on sides of tergite I sericeous whitish as in biumbonatum. Head with the interocular space on vertex in 3 sometimes tending to be a little broader than ocellar tubercle. Legs usually with more numerous spines, about 4–7, on lower outer aspect of hind femora, these spines smaller, not always confined to apical part, but extending from even near base, or before middle, to apex. Hypopygium of 3 similar to that of biumbonatum (cf. text-fig. 34, b), differing, however, in having the beaked apical joints relatively narrower, the outer apical angle less angularly prominent, the joint thus slightly narrower across this angle, the beak thus appearing longer, with the lateral ramus on each side from each basal part, where they join under aedeagal part, prolonged or produced into a slight, apically directed, lip-like extension.

From 8 33 to 13 QQ (types in the South African Museum, paratypes in the British and Durban Museums).

Length of body: about 5-8 mm. Length of wing: about 4-7 mm.

Locality: South-western Cape Province: Muizenberg Mts. (Thorne, Dec. 1937); Wit River Valley in Bain's Kloof near Wellington (Mus. Exp., Dec. 1949) (types); Villiersdorp (Mus. Exp., Jan. 1937); Genadendal (Mus. Exp., Jan. 1937); Cape Town (Bevis, 2 Dec. 1921); Kleinmond (Wood, Jan. 1937). South-western Karoo: Michell's Pass (Simmonds, 1–5 Dec. 1930); Koup Karoo: Laingsburg (Mus. Exp., Feb. 1938); Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952).

Easily recognizable by the presence of very dense and compact cretaceous whitish scaling on frons, by the fewer and more whitish hairs on frons, and more uniform whitish scaling on body above. It appears to be distinctly variable to such an extent that a form occurring in the western and northern parts of the Karoo and in Namaqualand is referable to a distinct variety, namely:

# Epacmoides albifrons var. pallidulum n.

This variety represents a northern and Karoo-form of the typical southern form and differs from the latter in having the yellowish red or reddish on body and legs distinctly more developed, more conspicuous and more extensive; hind margins of tergites discally and on sides, especially laterally, and the venter, especially in  $\Im$ , distinctly broader, or very much broader, more conspicuous and more extensive; sides of abdomen and venter in  $\Im$  being predominantly, or entirely, pale yellowish reddish and venter in  $\Im$  also more extensively reddish than in typical  $\Im$ . The apices of femora are usually more broadly pale yellowish reddish or yellowish and the last tibiae are entirely pale like rest of tibiae. The prealar, postalar and scutellar bristles also tend to be more reddish or reddish golden and in  $\Im$  there is usually more ochreous or ochreous brownish scaling discally on abdomen above, sometimes arranged in two rows of discal patches. The hypopygium of  $\Im$  is almost identical with that of biumbonatum (cf. textfig. 34, b).

From 9 33 and 7 99 (types of variety in the South African Museum).

Length of body: about  $4\frac{1}{2}$ -8 mm. Length of wing: about 4-7 mm.

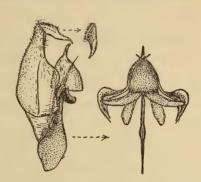
Locality: Western Cape: Olifants River Valley (Citrusdal-Clanwilliam) (Mus. Exp., Oct.-Nov. 1931); upper sources of Olifants River near Ceres (Mus. Exp., Dec. 1949); Paleisheuwel (Mus. Exp., Nov. 1948) (types). Bushmanland: Onseepkans (Mus. Exp., Oct. 1939); Pofadder (Mus. Exp., Oct. 1939). North-western Karoo: Putsonderwater (Mus. Exp., Oct. 1939); Kenhardt Div. (Mus. Exp., Oct. 1939).

#### Epacmoides xerophilum n. sp.

Body black, the frons and conical face shining; proboscis dark brownish or sienna brownish; hind margin of metapleural part, hind margins of tergites and sternites narrowly or broadly (sometimes obscurely) reddish, yellowish brownish to reddish brownish, the hind margins of tergites laterally in of slightly broader yellowish and those of sternites appearing more pallid; femora blackish, their apices yellowish brownish to yellowish, the tibiae and greater part of tarsi yellowish or luteous, apical parts of tarsi brownish. Vestiture with the flattened scaling on front part of frons in 3 cretaceous whitish, much sparser and only on sides and more yellowish in Q; scaling on thorax and scutellum above and on pleurae relatively sparser than in biumbonatum, predominantly chalky whitish; that on abdomen above discally, predominantly dull ochreous to brownish yellowish, especially across apical halves of tergites, that on basal halves more dull whitish in certain lights, that on sides of abdomen dull whitish to white; scaling on venter more whitish; that on legs predominantly chalky whitish, appearing more yellowish on tibiae; short bristly hair on more than basal half of frons appearing dark, more brownish, that anteriorly more whitish in 3, sericeous yellowish to yellowish in Q; fine hairs on occiput gleaming whitish to pale sericeous yellowish in 3, more yellowish in 9; hairs on thorax above whitish in collar and on anterior part and on mesopleuron, gleaming more sericeous yellowish to reddish golden on rest of thorax above; prealar, postalar and scutellar bristles, and those across base of thorax conspicuously reddish golden; hairs on sides of tergite 1 and, in 3, sides of abdomen whitish; shortish, bristly hairs across hind margins of tergites deep reddish or brownish golden in both sexes, that across last tergite in Q appearing darker. Wings glassy hyaline, iridescent, with a scarcely perceptible whitish subopacity at base; first and second main veins and those at extreme base yellowish, rest of veins dark brownish; darkish spot-like infusion at base of third vein very faint and indistinct; forward bend in apical part of second vein deep and rounded, the backward bend at apex also deep and rounded; middle cross vein distinctly much before middle of discoidal cell; squamae opaquely whitish, fringed with whitish hairs; halteres pale yellowish, the knobs almost white. Scutellum tumid, distinctly more narrowed apically than in either biumbonatum or albifrons, the

central perpendicular incision or indentation apically only indicated as a very feeble vertical groove-like impression, not deep and gap-like as in the two preceding species. *Head* with the interocular space on vertex in 3 as broad as distance between outer margins of posterior ocelli plus width of an additional

posterior ocellus on each side; space in ♀ only a little more than 2 times distance between outer margins of posterior ocelli; frons slightly convex in 3, distinctly and fairly deeply depressed centrally in front of front ocellus in \( \text{\$\gamma\$} \); antennal joint 3 broadened bulb-like or club-like basally, more rapidly below, the more slender apical part subequal in length to, or a little shorter than, broad basal part; facial cone rather prominent, slightly longer and more sharply pointed than in either biumbonatum or albifrons, distinctly less convexly rounded, its dorsum, in profile, distinctly straighter, less convex, a transverse basal depression in front



TEXT-FIG. 35. Side view of hypopygium, ventral view of aedeagal complex, and dorsal view of beaked apical joint of & Epacmoides xerophilum n. sp.

of antennal bases scarcely or not indicated, not almost groove-like as in the other two species, the hairs on cone finer and sparser; proboscis about ·8-1·8 mm. long, its labellar lobes ovoid. Legs with a few minute spinelets basally below on front femora; middle ones usually with 1 or 2 spines below; hind ones with about 5-10 small spines from near base to apex on outer lower part, some spines on outer upper apical part, but without any spines on inner lower aspect. Hypopygium of 3 (text-fig. 35) differing from that of biumbonatum in having the beaked apical joints narrower, more claw-shaped, the lateral ramus on each side produced into a stylet-like process (shown crossed in figure) below aedeagal complex and in having no distinct shelf-like ledge present laterally on basal strut.

From 1 3 and 7 99 (types in the South African Museum).

Length of body: about  $5-8\frac{1}{2}$  mm. Length of wing: about  $4\frac{1}{2}-8$  mm.

Locality: Namaqualand: Knersvlakte (Mus. Exp., Oct. 1939) (holotype)

and (Mus. Exp., Oct. 1950) (allotype).

Easily recognized and distinguished by its more conical and pyramidal facial cone and more triangular or apically narrowed scutellum, which is only very feebly vertically incised apically. Like *albifrons* this species also appears to be variable in size and in other characters.

# Epacmoides cryptochaunum n. sp.

Several 99 in the collections before me may almost be considered as merely representing a Karoo variety of *xerophilum*, but as they differ in some important

respects they are referred to a distinct species which differs from xerophilum in the following respects:

Body with the hind margins of the tergites black and not yellowish as in xerophilum; tibiae and tarsi, or at least the former, distinctly much darker, more brownish to almost black (hind ones) and not luteous. Scutellum more tumid and conical, its apical incision even less distinct, very faint, at most only indicated. Vestiture with the fine hairs on face distinctly less dense and shorter, on the whole much darker, even on sides where they are more extensively pale in xerophilum; hairs on sides of thorax, apart from the reddish thoracic bristles, and on upper part of mesopleuron more whitish or pallid, not so yellowish or reddish golden as in the other species. The frons and face in this species are also more shiny.

From 6 99 (type in the South African Museum).

Length of body: about 5-8 mm. Length of wing: about  $4\frac{1}{2}-7\frac{1}{2}$  mm.

Locality: Rooinek Pass, east of Laingsburg (Mus. Exp., Oct. 1952) (type). Koup Karoo: Teekloof in the Nieuveld Mountains (Mus. Exp., Nov. 1935).

The specimen from Teekloof is a slight variety which is larger and in which the veins in wings are paler and the hair on frons more whitish.

## Antonia-group

The characters of this group are summarized in the key to the genera of the *Tomomyzinae* and are also more fully dealt with in the more comprehensive description of the only known and remarkable genus *Antonia* and its species given below.

#### Gen. Antonia Lw.

(Loew, p. 30, Neue Beitr., iv, 1856; Bezzi, p. 136, The Bombyliidae of the Ethiopian Region, 1924; Paramonow, p. 67, Acad. d. Sc. d. l'Ukraine, xi, livr. 2, 1929; Séguy, p. 238, Ann. Mus. Genova, lv, 1931; Engel, p. 357, Die Fliegen d. Pal. Reg., lief. 91, 1935.)

(Syn. = Dimorphaphus Walker, p. 255, The Entomologist, v, 1871.)

(Syn. = Dimorphophora Walker, p. 272, The Entomologist, v, 1871.)

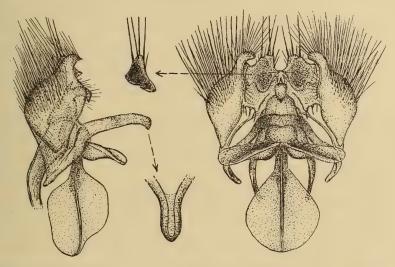
(Syn. = Dimorphaphus Scudder, Nomencl. Zool., 108 et Univ. Index, 99, 1884.)

Representatives of this peculiar genus are remarkable in that they bear a very close superficial resemblance to some Syrphid-flies, belonging to the genera Xanthogramma and Sphaerophoria. Not only do they mimic such Syrphids in the elongate shape of the body and abdomen and in the characteristic yellow and black colour-pattern, but also in their manner of flight. Some confusion in regard to the sex of the species of this genus occurs in most of the literature dealing with such species. The fact that the  $\varphi\varphi$  of this genus are usually provided with an appendage on each side of the ninth or terminal abdominal segment

has contributed to this confusion. Loew, who apparently mistook a  $\mathcal{Q}$  of his genotype *suavissima* for a  $\mathcal{J}$ , was the first to initiate this series of sex confusions and apparently all subsequent authors mistook the  $\mathcal{Q}\mathcal{Q}$  for  $\mathcal{J}\mathcal{J}$  as is evident from their descriptions and keys to the known species. A more careful examination of the terminal part of the abdomen would have revealed the fact that in the specimens with the appendages ( $\mathcal{Q}\mathcal{Q}$ ) no hypopygial structures are present and that the abdomen is composed of 9 segments and not 8 as in the true  $\mathcal{J}\mathcal{J}$ . The characters of this genus, as based on the known South African forms, are as follows:

Body elongate; abdomen also elongated, Hymenopteroid in shape, but markedly resembling that of certain Syrphid-flies; a characteristic yellow or orange yellowish and black colour-pattern usually present, especially on the abdomen, which is even more suggestive of certain Syrphid-flies, with the yellow, orange yellowish or even orange reddish much developed in facial region, head below, on pleurae, as spots on or along sides of abdomen, on venter and on legs. Vestiture in the form of erect bristly hairs and sparse, fine, decumbent scales or hair-like scales, the latter fine, relatively sparse and practically confined to occipital part behind eyes, on thorax above, abdomen above and to a certain extent on venter; the erect elements in form of bristly hairs on basal part of frons, sides of frons anteriorly, sides of genal part of face and on antennal joints 1 and 2, as dense short hairs on occipital margins, as longish and fairly dense hairs across front part and sides in front of wings on thorax, in a tuft on each side above front coxae, on upper part of mesopleuron, in a metapleural tuft, densely on sides of tergite 1 and less densely on tergites 2-4, and on basal sternites; hairs on disc of thorax shorter, those across base of thorax above and on scutellum not very dense but longer than on disc; stouter prealar bristles present on each side in front of wings; longish bristly hairs on postalar calli and scutellum more hair-like; shortish bristly elements on tergites 4 (or 5) to 7 (or 8) usually stouter, more bristle-like or setae-like, denser along lateral margins of these tergites and usually black; coxae with longish hairs; pleurae bare for the greater part, but with some hairs on the sternopleuron and a tuft on metanotum. Head quite as wide or a little broader than thorax, slightly deeper than broad; occiput relatively short, much shorter than in the Plesioceragroup or in Lomatia, with the central sulcus behind ocellar tubercle gap-like, the sides of occipital part on side of head the broadest; eyes large, their hind margin angularly or subangularly deeply indented and with a distinct, short, bisecting line visible from this indentation or emargination; eyes separated on vertex by a space as broad as ocellar tubercle or scarcely broader than tubercle in both sexes, sometimes even tending to be slightly less than width of tubercle in front of tubercle, the facets in upper anterior aspect distinctly coarser and in 33 distinctly coarser than in 99; three ocelli present on a tubercular prominence; frons triangular in both sexes, diverging rather rapidly anteriorly, with less than the basal half rather depressed, the front part of frons medially tumidly prominent, this part, in profile, roundly tubercle-like or boss-like, the proximal part of this bulge sometimes with a very distinct central groove-like depression which is sometimes continued basally on depressed basal part to ocellar tubercle; antennae situated in a deep transverse depression, bounded above by frontal tubercle and below by produced face, the first joints separated at bases, cup-shaped, much broader and also longer than rounded or transverse second joints which are lodged in them, the third joints club-shaped, broadened onion-like at base, then rapidly tapering, the apical part being slender, ending apically in a rather longish terminal joint-like element or jointed style which itself ends in a stylet; face distinctly conically prominent or produced as in Plesiocera and other genera of the Plesiocera-group, its upper margin, in profile, horizontal or in line with the long axis of body, the facial part marked off from rest of front part of head by a deep groove, the upper parts of genal regions thus conspicuous on each side below antennae; buccal cavity long, deep and oblique; proboscis confined to length of buccal cavity or only slightly protruding apically, its labellar lobes relatively long, about half the length of rest of proboscis, sometimes even more than half this length, pointed apically; palps tending to be flattened or strap-like, not visibly jointed, unless the apical slightly broadened part represents an apical joint, with fine, sparse hairs present especially along upper outer aspect. Thorax quadrangular, slightly convex above, with the humeral angles rather prominent; scutellum very transverse, separated from thorax by a deep transverse groove. Wings usually vitreous or greyish hyaline; the membrane usually wrinkled; second longitudinal vein originating very near or at base of third main vein; costal cell rather elongate; upper branch of second longitudinal vein (in apical part of wings) only slightly bent upwards at its end, not so bent up or recurved as in the preceding genera and in Pantostomus and Tomomyza; three submarginal cells present, the third formed apically between the upper and lower branches of second main vein (cf. fig. 10, p. 137, The Bombyliidae of the Ethiopian Region); four posterior cells present, the first of which may be acute apically and closed, or only narrowed and open apically; third posterior cell usually distinctly narrower on hind margin than the second and fourth; middle cross vein near apical part of discoidal cell and the latter usually rather elongate; basal comb wanting; alula wanting or vestigial; axillary lobe narrowish, not lobe-like; halteres with rather long and slender stalks, the knobs truncated and cup-like apically. Abdomen attenuated apically in 99, less so in 33, with 8 visible tergal segments in 33 and 9 in 99, with, however, a tendency for some of the segments to be telescoped into the preceding ones; sides of the tergites tending to overlap and to hide the venter below; tergite 9 in 99 just visible under 8 and bearing on each side a downwardly directed appendage or process (see text-figs. 37, a, and 38) which is usually slightly flattened and which may be elongate or even broadish, shorter and flattened, strap-like or even curled (see text-fig. 38); last sternite in 33 produced apically on each side into a lobe-like process, the apices of which are rounded. Legs without any distinct spines on the front and middle femora below, only fairly dense and longish hairs being present; hind femora also with

dense and longish hairs, but also with some distinct spines on outer apical part and apically above, which are more conspicuous in some species; tibiae with more or less 4 rows of well-developed spicules, those on hind ones more strongly developed, those on inner lower aspect of front tibiae vestigial or wanting; claws well developed, and curved down apically; pulvilli also well developed. Hypopygium of 33 (as based upon the known 33 of the two South African species xanthogramma and cercoplecta) as shown in text-figures 36 and 39, with the basal part more or less divided into two distinct parts, each somewhat shell-like in



Text-fig. 36. Side and ventral views of hypopygium and apical views of beaked apical joint and ventral process of 3 Antonia xanthogramma Bezz.

appearance, ending apically in an outer apical process, the apex of which is bent slightly inwards, each basal part also provided with longish and fairly dense bristly hairs in apical half and on the process; beaked apical joints subtriangular in outline, very much flattened or laterally compressed (see ventral view), the outer face being somewhat concave, ending apically in a fairly sharp point, the lower edge of which is recurved and spine-like (see the apical view in middle figure above in text-figure 36 and middle figure in text-figure 39), with about 3-4 (or more) longish and stoutish bristles along the upper margin of each, and sometimes also with a few shorter hairs; aedeagal complex with the aedeagus itself short, sometimes provided below with a parrot-beak-like process (shown in dotted outline in side view of text-figure 36); lateral ramus, from each basal part on each side, produced together ventrally into a V-shaped ventral process; dorsal part of aedeagal complex produced on each side into a basally directed process (seen in both side and ventral views); lateral struts shoe-horn-shaped; basal strut remarkable in being four-vaned, being produced on each side into a shelf-like or flange-like plate (see figures),

the basal strut thus resembling a cross in section. Genital structures of  $\varphi\varphi$  (text-figs. 37, a, and 38) externally in form of an outer larger pair of genital lamellae ventrally below and between the appendages, and an inner shorter pair of lamellae between the larger pair (see ventral views of text-figures).

This genus differs from the preceding genera of the *Plesiocera*-group chiefly in having the hind margins of the eyes more distinctly, more deeply and more angularly indented and also distinctly bisected posteriorly in line with this indentation; in having the eyes narrowly separated above on vertex in both sexes; in having the front part of frons tumidly or tubercularly raised or prominent; the antennae more widely separated at base and situated in an apparently deeper depression; in having antennal joint 3 more distinctly onion-shaped; in having the origin of second longitudinal vein at, or very much nearer, base of third main vein; in having three submarginal cells in wings; a distinct and sometimes elongate appendage on each side of tergite 9 in  $\varphi\varphi$ ; in having denser and more conspicuous hairs on body and legs and an entirely different type of hypopygium.

The biology and life history of representatives of this genus are not known. There is a probability that one of the South African species, xanthogramma, may be associated with or may develop in the nests of certain species of Bembex, a genus belonging to the Sphegidae. Mr. C. Thorne of the South African Museum reports that he caught a Q of Antonia xanthogramma following one of these fossorial wasps. The Sphegid has the habit of settling on damp sand, of flying away again and settling at some other place some distance away and also of making holes in the ground. It was observed that the Antonia accompanied the Sphegid, following and flying immediately behind it, and when the latter settled on the sand the fly would also settle somewhere near it. The new species described hereunder was also caught visiting damp places where species of Bembex and Masarids settled. It is also significant that the yellow and black colour-pattern of species of Antonia also superficially resembles that of species of Bembex. On the dissection of the terminal part of the abdomen of one 2 of xanthogramma for the purpose of studying the genital structures, an egg was found. This egg, shown in a side and ventral view in text-figure 37 b, is chitinous brownish, about ½ mm. long and a little less than ¼ mm. broad, flattened on one side and convex on the other, without any visible microsculpture, but with the chorion on flattened side visibly thinner and apparently smoother, with the greatest breadth across the flattened side and with a distinct opercular or cup-like structure at one end. At present this genus is represented by ten known species of which five have been described from Northern Africa and the Palaearctic region, a single species from Australia, which Becker referred to a separate genus, Antoniaustralia, and four from the Ethiopian region south of the Sahara. Another and new species from South Africa is described below. In view of the fact that Phave been mistaken for 33 there is a probability that the true 33 in some cases have been described as separate species. The genotype is the Palaearctic suavissima Lw. Of the four species, cirrhata Bezz., xanthogramma Bezz., nigrifrons

Bezz. and bella Curr., described from Africa south of the Sahara, only xantho-gramma and the new species described here are at present known from Southern Africa. These two species may be separated as follows:

- (b) Yellow on frontal tubercle, facial cone, and especially on sides of tergites and sometimes also on legs deeper, more distinctly reddish or orange yellowish; proboscis and labella entirely or predominantly sienna brownish to castaneous brownish; more conspicuous and more extensive black on frontal tubercle, between antennae, on antennal joints 1 and 2 and on facial cone above; black spots on extreme sides of bases of tergites 2-7 distinctly larger, more extensive and more conspicuous; hair on body above and below distinctly less deeply yellowish, more whitish or straw-coloured, that below contrastingly whitish; bristly hairs on extreme sides of tergite 4 predominantly black like those on tergites 5-8, not pale like those on tergites 2-3; tergite 9 in ♀ with the appendage on each side relatively much shorter, broader, flatter and more or less curled up scroll-like (see text-fig. 38).

♂♀ cercoplecta n. sp. (p. 141)

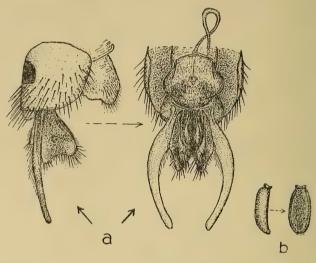
#### Antonia xanthogramma Bezz.

(Bezzi, p. 140, The Bombyliidae of the Ethiopian Region, 1924; Paramonow, p. 74, Acad. d. Sc. d. l'Ukraine, tom. xi, livr. 2, 1929; Séguy, p. 239, Ann. Mus. Genova, lv, 1931.)

There is no doubt that a series of  $\Im \Im$  and  $\Im \Im$  in the collections before me represent this species of Bezzi, a description of which was based upon a single  $\Im$ -specimen from Natal. As Bezzi described only the  $\Im$  a supplementary description, based upon both sexes, is given here:

Body black; greater part of frons, greater part of antennal joints 1 and 2, entire facial region and head below, lower part of head behind eyes, palps, humeral angles, a transverse triangular spot on each side of thorax in front of wing-bases, postalar calli, greater part of scutellum, excepting only narrow black base and black sides, anterior thoracic spiracles, propleural part just above front coxae, upper part of sternopleuron, entire pteropleural plate, upper part of the hypopleuron, metapleural plate above posterior thoracic spiracle, hind margin of metapleural region, apical half of sides of tergite 1, a large spot on each side of tergite 2 or almost entire sides of tergite 2, greater part of sides of 3–7 and also hind margins discally of 4–7, almost entire tergite 8 in  $\circlearrowleft$ , tergite 8 in  $\circlearrowleft$ , tergite 9 and appendages in  $\backsim$ , entire venter and genitalia in both sexes, front and middle coxae and hinder part of hind coxae pale yellowish, lemon yellowish to pale ochreous yellowish, the yellow on sides of abdomen and on frons sometimes with a slight reddish or orange tint; base of frons darkened and in  $\circlearrowleft$  more extensively brownish, with a black spot between antennae;

antennal joints 1 and 2 above, especially in 3, usually also blackish; proboscis ochreous yellowish or even slightly pale reddish yellow, but the labella brownish; hind margins of tergites 2–7 whitish, especially discally, with a smallish roundish black spot in basal angle on each side below on tergites 2–4 (or 5) and with the black on abdomen above extending down across base on each side from large discal spot on tergites 3–7 and not reaching lateral margins but slightly broadened on each side, especially on tergites 3–5, the discal black spot on



Text-fig. 37. (a) Side and ventral views of terminal part of abdomen of  $\mathcal{Q}$  Antonia xanthogramma Bezz. to show appendages, genital lamellae, etc. (b) Side and ventral views of egg of same species.

tergite 7 in 3 smallest, and that on 8 in 9 even smaller and hidden by preceding tergite; legs almost entirely lemon yellowish, only the hind tarsi and apical parts of the others darkened and brownish or blackish, the apices of the claws black. Vestiture predominantly pale yellowish, that below not much paler than above; hair on thorax, however, appearing distinctly pale lemon yellowish in certain lights; that on sides of face appearing more whitish; that on sides of tergite 1 sometimes more straw-coloured yellowish; bristly hairs on tergites 5-8, especially on sides below, predominantly black, only those across hind margins of these segments yellowish; fine hair-like scaling on thorax and abdomen above gleaming brassy yellowish to golden yellowish; that on occiput also gleaming golden; spines and spicules on legs yellowish, the hairs also predominantly pale sericeous yellowish, those on more than apical half of hind femora, especially on inner and outer aspect, black; hair-like scaling on legs predominantly yellowish, but that on hind tibiae and also somewhat densely on outer apical aspect of hind femora, black. Wings vitreous hyaline to slightly greyish hyaline, iridescent; veins dark brownish to blackish brown, paler at base of wings, the false vein in costal cell yellowish; first posterior cell open on hind border of wings; squamae subopaquely to opaquely yellowish, fringed with straw-coloured yellowish hairs; halteres yellowish, with almost whitish knobs. Head with the interocular space on vertex as broad as ocellar tubercle in both sexes, the inner margins of eyes in front of tubercle in  $\mathcal{P}$ , however, more gradually diverging; antennae with the knob-like or onion-like base of joint 3 about a third length of the joint (excluding terminal elements); proboscis about  $1\frac{1}{2}-2$  mm. long. Hypopygium of  $\mathcal{P}$  (text-fig. 36) as described for genus. Genital structures of  $\mathcal{P}$  (text-fig. 37, a) with the appendage on each side of tergite 9 elongate, a little less than 1 mm. long, slightly flattened dorso-ventrally, slightly curved inwards, broader basally than apically, the apex however rounded, with these appendages normally directed ventrally as if hanging down and their apical parts sometimes curled inwards; large pair of outer genital lamellae between appendages ventrally and the pair of smaller inner lamellae as shown in figures. Egg shaped as shown in text-figure 37, b, and as described under genus.

In the Commonwealth Institute, British, Transvaal and South African Museums.

Length of body: about 8-11 mm. Length of wing: about 7-8\frac{1}{3} mm.

Locality: Western Cape Province, Little Karoo, North-eastern Karoo, Eastern Cape Province, Natal, Orange Free State and Southern Rhodesia.

This species appears to be widely distributed throughout Southern Africa but does not appear to be variable except in size. From the  $\mathcal{P}$  (not  $\mathcal{S}$  as stated by Bezzi) of cirrhata Bezz., described from Somaliland (p. 138, The Bombyliidae of the Ethiopian Region, 1924), this species appears to differ, according to Bezzi's description, in not having a continuous broad yellow stripe on each side of thorax, in having paler yellowish and not yellowish red on sides of abdomen and entirely yellow femora.

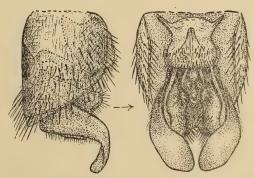
# Antonia cercoplecta n. sp.

This species, which often hovers over or settles on damp places in dry riverbeds, is very near xanthogramma,

differing chiefly in the following

points:

The yellow on sides of abdomen and on frons and facial cone above distinctly deeper and more reddish to orange, the sides of abdomen in fact being markedly orange yellowish; black on abdomen above distinctly more extensive, even in 3, the discal patches broader, these black patches and their extensions down the sides of basal part of the tergites very similar to those of xanthogramma;



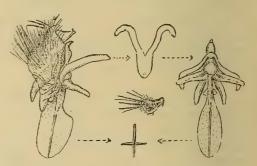
Text-fig. 38. Side and ventral views of terminal part of abdomen of Q of Antonia cercoplecta n. sp. to show appendages and genital lamellae.

whitish hind margins very conspicuous; black spots at basal angles of tergites on each side below very much larger, more conspicuous and present on tergites 2-6 (or 7) and not only on 2-5; black spot between antennae also larger, and with more extensive black on antennal joints 1 and 2 above and usually also with more conspicuous black on facial cone and even frontal tubercle above; proboscis entirely sienna or castaneous brownish. Vestiture distinctly paler, less lemon yellowish, more straw-coloured above; prealar bristles yellowish; hair distinctly more whitish on frons, sides of face, pleurae, coxae and sides of tergite I and basal parts of abdomen; that on body below more distinctly contrasting in whiteness; black bristly hairs on abdomen present on tergites 4-7 (or 8) and not only on 5-7 (or 8). Antennal joint 3 with slender part relatively longer. Wings appearing slightly more greyish hyaline; veins even more distinctly blackish brown or deep chocolate brownish; first posterior cell also open. Legs sometimes slightly deeper yellowish and with a distinct black spot or infusion on outer apical part of hind femora; black hairs and scale-like hairs on hind legs also apparently denser, more conspicuous; yellowish spines on apical part of hind femora also more conspicuous and stouter. Abdomen with tergite 9 in 2 having a shorter, very much broader, flattened, more strap-like and curled or scroll-like appendage on each side (text-fig. 38); external genital structures of 2 also shown in figures. Hypopygium of 3 as shown in text-figure 39, differing from that of xanthogramma in having no ventral process below aedeagus, longer

and narrower lateral struts, shorter dorsal processes to aedeagal apparatus and a differently shaped basal strut.

In the yellowish colour-pattern of the body and in most other respects this species agrees with xanthogramma. In size it is usually slightly larger and more bulky in appearance, about  $8\frac{1}{2}-14\frac{1}{2}$  mm. long and with a wing-length of about 8-11 mm.

From 5  $\Im \Im$  and 5  $\Im \Im$  (holotype in the South African Museum, allotype in the Transvaal Museum and paratypes in the British and South African Museums).



Text-fig. 39. Hypopygial structures of & Antonia cercoplecta n. sp. Left: side view of hypopygium; right: ventral view of aedeagal apparatus; middle above: dorsal view of aedeagal process; middle below: posterior view of four-vaned basal strut; middle: dorsal view of right beaked apical joint.

Locality: Namaqualand: Kamieskroon-Springbok (Mus. Exp., Oct. 1939). Karoo: Augusfontein (Calvinia Dist.) (Mus. Exp., Sept. 1947) (holotype); Willowmore (Brauns, Oct. 1916) (allotype); Willowmore (Brauns, 15 Dec. 1921). Southern Karoo: Matjiesfontein (Turner, 25–30 Oct. 1928). Moordenaars Karoo in the Laingsburg Div. (Mus. Exp., Oct. 1952).

From the supposed of of nigrifrons Bezz., described from Kenya (p. 141, The Bombyliidae of the Ethiopian Region, 1924), this species differs in not having

the frons predominantly black and in having more extensive black on the tergites above. From the  $\Im$  (probably  $\Im$ ) of bella Curr., described from the Congo by Curran (p. 37, Bull. Amer. Nat. Mus. Hist., lvii, 1927–8), it appears to differ in not having any black hairs on thorax above, on postalar calli and on scutellum, in not having more or less luteous-tinged wings and in having more extensive black and a slightly different type of colour-pattern on abdomen above.

#### Subdivision BOMBYLIIDAE TOMOPHTHALMAE

The representatives of all the subfamilies (Lomatinae, Anthracinae and Exoprosopinae) dealt with in the rest of this revision constitute the large second Division Bombyliidae Tomophthalmae of Bezzi and other authors which they separated from their first Division Bombyliidae Homoeophthalmae (dealt with in Part I of my revision and in this second Part up to end of the genus Antonia) chiefly by the ocular characters of an indentation or emargination in hind margin of the eyes and the presence of a distinct, short, bisecting line projecting from it into the eye. As I have already stated in Part I of my revision (p. 21) these distinguishing characters and certain others, though convenient up to a point, are not constant enough to include the anomalous exceptions.

#### Subfam, LOMATIINAE

As was stated under the *Tomomyzinae* this subfamily at present includes genera which show little homogeneity. An attempt has been made by Becker (pp. 434-5, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912) to split the subfamily up into two separate subfamilies Aphoebantinae and Lomatiinae. A revision of all the known genera which at present are included in it would no doubt necessitate the erection of separate groups of genera and some aberrant genera, such as Petrorossia Bezz., Chionamoeba Sack and Chiasmella Bezz., placed in the Lomatiinae by Bezzi, would have to be given a new subfamily rank. Within the geographical limits dealt with in this memoir only five genera, Lomatia Meig., Petrorossia Bezz., Chionamoeba Sack, Pteraulax Bezz. and Pteraulacodes n. gen., are represented. Two of these, Lomatia (as defined in this revision) and Petrorossia, appear to replace and to represent the Palaearctic Lomatia s. str. and the American Aphoebantus (also supposed to occur in the Mediterranean and North African regions) respectively. On the other hand Pteraulax and Pteraulacodes have not been recorded from elsewhere and appear to be indigenous to South Africa. From the differences between these genera it is evident that they can be relegated to four separate groups: the Lomatia-group (Lomatia), the Aphoebantus-group (Petrorossia and the Palaearctic Pipunculopsis, Aphoebantus and Cononedys), the Pteraulax-group (Pteraulax and Pteraulacodes) and the Chionamoeba-group (Chionamoeba and Chiasmella). A synopsis of the chief characters distinguishing these groups is given in the key to the genera and more details are to be found in the comprehensive descriptions of the genera and species dealt with in the following pages. Collectively, representatives of the Lomatiinae may however be

distinguished from members of other subfamilies belonging to Division II as follows: From the Cylleniinae they differ by their more flattened or cylindrical bodies, the angularly indented hind margin of the eyes, longer face, very much shorter proboscis which is practically confined to the buccal cavity, the conical, pyriform, club-shaped or bulb-shaped third antennal joints, less strongly developed legs, fewer spines on hind femora below and different type of 3-hypopygia (cf. text-figs. 41-111 and 1-7). From the Tomomyzinae they may at once be distinguished by the facial region which is not conically produced or prolonged snout-like, by the club-shaped, bulb-shaped, onion-shaped or even golf-driver-club-shaped third antennal joints and by the much denser hair and bristly hairs on the body. From the remaining two subfamilies, the Anthracinae and Exoprosopinae, representatives of the Lomatiinae differ in having the second main vein originating acutely or obtusely much nearer or very close to base of third vein and in not having a plumula, or small tuft of hairs, on the ligamentous connection between the squama and scutellum.

## Lomatia-group

Within our geographical limits the only genus which may be referred to this group is the form of the genus *Lomatia* which is found in Africa south of the Sahara. Without doubt *Lomatia* s. str. of the Palaearctic Region, the genus *Canaria* Beck. and the genus *Anisotamia* Macq. also belong to it. From representatives of the other two groups, members of the *Lomatia*-group differ in the following respects:

Abdomen relatively broad, flattened dorso-ventrally. Vestiture on body dense, shaggy and comparatively long, in form of dense brush-like tufts on sides of abdomen and a tuft also present on metanotum. Wings with the second vein originating more or less at an acute angle near base of third vein and without a forward bend or kink near its apex; middle cross vein always distinctly beyond or much beyond middle of discoidal cell. Head without an abbreviated bisecting line extending forwards from indentation on hind margin of eyes; antennae with a conspicuous brush or tuft of bristly hairs on inner and lower parts of joints 1 and 2; joint 3 broadened club-like, bulb-like or golf-driver-club-like at base and terminating in a fine style only.

# Gen. Lomatia Meig.

(Meigen, System. Beschreib., iii, 1822 (Introduction); Loew, p. 202, Dipt. Faun. Südafr., i, 1860; Becker, pp. 435 and 460, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, p. 111, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 141, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 361, Die Fliegen d. Pal. Reg., lief. 91 (Bombyliidae), 1935; Austen, p. 94, Bombyliidae of Palestine, 1937.)

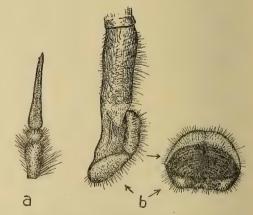
From descriptions of the genotype species sabaea F. and the large number of other Palaearctic and North African species on which the generic characters of

Lomatia are based, it is evident that the species of Southern Africa differ from the Palaearctic forms in certain essentials which appear to be sufficiently constant throughout the various species to warrant the erection of a distinct and separate genus or at least a well-marked-off subgenus. The genus Canaria which Becker (pp. 462-3, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912) erected to contain a species, Anthrax brunnipennis Macq. (p. 70, Dipt. Exot., ii, 1830; Engel, p. 372, Die Fliegen d. Pal. Reg., lief. 91, 1935), from the Canary Islands, seems to fulfil certain taxonomic conditions for the inclusion of the South African species. Bezzi himself suggested their inclusion in this genus in 1924 (loc. cit.). The description of Canaria given by Becker is, however, brief and unsatisfactory. A comprehensive survey of all the species, from both the Palaearctic Region and the African Continent, now included in the genus Lomatia s. str., is however necessary before the genus could be satisfactorily split up into separate subgenera or genera. At this juncture the only procedure to adopt provisionally is to consider Lomatia as a plastic genus of which the numerous Palaearctic and Ethiopian representatives display certain distinct, and to a certain extent constant, characters in various directions which necessitate certain separate and specific groupings, the separate generic or subgeneric significance of which will become apparent only when the species of both hemispheres are monographically revised or studied. All the species dealt with in this memoir are thus provisionally referred to *Lomatia* as was done by both Loew and Bezzi. The characters of the South African form of this genus, as based on the various species described below, are as follows:

Body tending to be broadish and somewhat flattened; abdomen especially broadish and flattened, rarely narrowish; venter usually flattened, the sides of tergites projecting eaves-like over depressed sides of venter; colour invariably black, without any yellowish or ivory yellowish hind margins to the tergites, but those of the sternites usually yellowish or pallid; legs rarely predominantly pale, though the tibiae may often be very much paler than femora. Vestiture in form of dense hair on frons, sides of face, on genae and on antennal joints 1 and 2 below, on sides of thorax, in mesopleural tuft, on prosternal part and especially on sides of abdomen where the hair is usually markedly dense, shaggy and tuftlike; that on disc of thorax usually shorter and sparser, relatively denser in front than discally or basally; that on scutellum and abdomen above relatively sparse; that on body above in PP of some forms distinctly sparser than in 33 and that on sides of abdomen often distinctly shorter; anterior lower part of mesopleuron and down to anterior part of sternopleuron, and pteropleuron down to hypopleuron and usually also greater part of metapleuron around spiracle bare; distinct prealar, postalar and scutellar bristles or bristly hairs invariably present; scaling on body above usually distinct, in form of fine, pubescent, hair-like scales on occiput and on sides of head and fine, hair-like scales on rest of body above, that on abdomen above usually dark or black and pale, the latter arranged across hind margins of tergites in dense transverse bands of variable extent, sometimes more concentrated in tuft-like patches on

sides and with the intervening dark scaling usually denser, finer and shorter; vestiture on legs in form of fine, longish and comparatively sparse hairs on femora below, especially in basal part or basal half, those on lower, outer or hinder aspect of middle femora however distinctly denser and more conspicuous and also longer than rest of the hairs on these femora below; scaling on legs dense, more flattened or lanceolate. Head more or less globular, about as broad as or sometimes even slightly broader than, occasionally slightly narrower than, broadest part of thorax; occiput broadish, well developed, sometimes distinctly longer in 22 than in 33, the central sulcus behind ocellar tubercle narrow and slit-like; eves large, reniform, convex, with the hind margin subangularly, or sometimes more roundly, indented, but without any visible or distinct, short, bisecting line extending forwards from indentation; the eyes separated above on vertex in both sexes, narrower in 33 than in 99, the space in 33 may be as wide as ocellar tubercle or, at narrowest part in front of latter, distinctly narrower than tubercle, rarely broader than latter, the space on vertex in 99 always broader than in 33, usually about, or a little less than, or a little more than, twice distance between outer margins of posterior ocelli, rarely about three, or more, times this width; from more rapidly narrowed basally in 33 than in 99, usually more or less depressed anteriorly in both sexes, sometimes even deeply or foveately so, rarely not visibly depressed; integument of frons, especially in basal half and on to vertex in most QQ, appearing smooth, polished and shining, sometimes so in both sexes; face usually not conspicuous, but in some forms with the medial part slightly more convex or raised, appearing subconically prominent from side; genal part sunk in, groove-like, constituting the furrow separating buccal cavity from eye-margin; buccal cavity deep; proboscis on the whole tending to be relatively short, often confined to length of buccal cavity or projecting only slightly, rarely long, in some species (text-fig.

40) rather short, stoutish, stumpy or plump, the labellar lobes either broad and ovoid like of some Muscid-flies, resembling two cupped hands when opened, or in other cases (text-fig. 53) more elongate, narrowish and pointed apically; labella and proboscis sometimes covered with visible spinules; palps slender, cylindrical, not visibly jointed, the apical part sometimes slightly broadened, covered with sparse, fine hairs which are longer below; antennae (text-figs. 40, a, and under species) usually distinctly separated basally, but not very

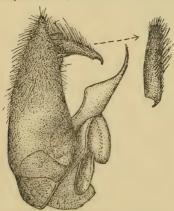


Text-fig. 40. (a) Right antenna of 3 Lomatia acutangula Lw. (from inner side). (b) Side view of proboscis, and on right a front view of the opened labella, of the same species.

widely, joint I usually thickened or even sub-barrel-shaped or broadened apically, usually longer than joint 2, sometimes thickened knob-like on inner lower aspect, usually covered with short, bristly hairs above and with a dense tuft of brush-like or bristly ones below and on inner lower aspect; joint 2 short, only a little longer than broad, with short hairs above and sometimes also below; joint 3 usually broadened basally, either more gradually or rapidly below, the lower basal part either only slightly prominent or much produced and bulging, the base of joint thus either club-shaped, bulb-shaped, onion-shaped or golfdriver-club-shaped, and with the apical part slender or styliform to a variable extent, with the terminal element at apex visible as a short, sometimes scarcely distinguishable, terminal stylet. Wings (cf. various text-figures) either normally developed, or sometimes elongate, sometimes tending to be narrowish and short, infuscated, infused or tinged to a variable extent, the pattern of the infusion also variable, or wings predominantly vitreous hyaline or glassy hyaline in a large number of species; infuscation when present sometimes less extensive in 33 than in 99; basal comb on the whole poorly developed, much reduced or vestigial in many forms; second vein originating near base of third vein, its apical part usually bent upwards, sometimes much recurved; two submarginal cells present; four posterior cells present; first posterior cell open on hind margin, either narrowed apically or very broadly open, sometimes elongate and with its sides subparallel, sometimes tending to be spindle- or sub-spindleshaped, either shorter than, or as long as, or sometimes much longer than discoidal cell; the latter either acute, subacute, subtruncate or truncate apically, its apical cross vein either oblique or parallel to hind border, straight or sinuous; middle cross vein always distinctly or much beyond middle of discoidal cell; alula usually much reduced, narrowish, not rounded lobe-like even though its apical lobe at base of axillary lobe may be moderately developed; axillary lobe either narrowish and much reduced or moderately and broadly rounded, rarely very broad and lobe-like; squamae transverse, fringed with dense hairs; plumula wanting. Metanotum distinctly visible on each side between scutellum and tergite 1, covered with a patch of hairs. Abdomen with eight visible tergites in 33 and seven in PP; tergite 2 longer than the others; last tergite in PP subangularly pointed apically, very much smaller and more rounded in 33; last sternite in 22 also narrowed apically, sometimes subangualrly rounded, usually dorsal in position and notched or incised apically in 33 and the inner part of its hind margin slightly produced basalwards in the form of a ledge or platform which itself is deeply incised and slit-like medially. Legs in most cases without any spines on front femora below, though sometimes with a few small spinelets in apical half above; middle femora usually with 1 or a few longish spines on lower anterior medial aspect; hind ones with a variable number of spines, more frequently with only about 2 or 3 on lower outer apical part below, sometimes also with a number of spinelets on outer and upper parts and usually with about 2 or 3 longer apical spines above; tibiae with four rows of spicules on middle and hind ones of which the outer or hinder upper row on middle ones and to a certain extent also those in same row on hind ones are longer, sometimes more bristle-like; spicules on front tibiae feebler, absent along lower anterior aspect where they are replaced by a strip or band of dense, short and fine, hairlike spinules; tarsi with some or a number of the spicules below on basal joint of front ones in PP of some species conspicuously elongated, fine, slender and bristle-like; claws normally developed, their apices curved downwards; pulvilli well developed in both sexes. Hypopygium of 33 (text-figures under species) usually reversed in position, the true dorsal side being directed to the sides or more frequently to the ventral side, and its opposing sternite (last unmodified sternite) dorsal in position; neck region of the two symmetrical basal parts more or less narrowed and covered with hairs which are sometimes dense, longish, conspicuous and situated in distinct punctures; outer apical angle of each basal part sometimes angularly, or even sharply, produced; beaked apical joints remarkably uniform in shape, ending in a slightly outwardly and downwardly directed pointed beak and usually covered with fine shortish hairs; aedeagus shaped as shown in figures; lateral struts from middle part very uniform in shape, but sometimes tending to be broadish or narrowed apically or even narrow and rod-like; basal strut variable in shape, very frequently with its dorsal edge incised or emarginate or sharply pointed and in many forms with a distinct flattened, ledge-like, triangular extension on each side basally.

The South African form of the genus as defined above appears to differ from the Palaearctic and North African forms as described by Paramonow and Engel (loc. cit.) in the following respects:

Hind margins or sides of hind margins of tergites never ivory or bony yellowish or yellowish; hair on sides of tergites distinctly much denser, more shaggy, and



TEXT-FIG. 41. Side view of hypopygium and dorsal view of right beaked apical joint of the 3 of a North African species of Lomatia s. str. (probably a var. of Lomatia Rogenhoferi Now.).

more or less resolved into dense tufts of black, white or yellow hair, or in zones of either yellowish and black tufts or whitish and black tufts; fine hair-like scaling always present on thorax, scutellum and on abdomen above, the pale ones usually arranged transversely across hind margins of tergites; antennae apparently tending to be slightly more separated at base, with joint I tending to be less dilated or knoblike on inner aspect and with a distinctly denser and more conspicuous tuft on inner lower aspect, joint 3 rarely not rapidly broadened basally below and thus rarely not club- or bulb-shaped at base; frons usually more distinctly, often conspicuously, depressed anteriorly; hind margin of eyes without a visible bisecting line and the

indentation more subangular or more rounded; legs with the hairs on femora comparatively much sparser and with the spicules in outer upper row on middle and hind tibiae usually longer and more developed than rest of spicules; hypopygium of 33 (cf. text-figures from 42 under the species), when compared with those of Palaearctic forms figured by Engel (pp. 368–85, loc. cit.) and with text-figure 41 (a side view of that of a North African species, probably a variety of Lomatia Rogenhoferi Now.), also different in that the beaked apical joints are differently shaped, less elongate or parallel-sided, without the outer apical angle being angular or produced and with less or much shorter hairs above, a less angularly produced apical part of basal parts, slightly differently shaped aedeagus, etc.

The very closely related genus Anisotamia Macq. (p. 81, Dipt. Exot., ii, 1840) which apparently differs from Lomatia practically only in having the first posterior cell closed and stalked apically (Bezzi, p. 199, Bull. Soc. Roy. Ent. d'Egypte, viii, 1925) is not represented in the collections before me. It is apparently represented only in North Africa and the Mediterranean by the species ruficornis Macq. (p. 81, loc. cit.). The species Anisotamia centralis which Macquart (p. 82, loc. cit.) described from South Africa is, according to his own description, without doubt a synonym of Lomatia pictipennis Wied. Macquart's supposed figure of this species (loc. cit., tab. xiv, fig. 2) cannot possibly refer to his centralis, for he distinctly states that the first posterior cell is open.

Notwithstanding the tendency for the species of Southern Africa to fall in certain groups, it is sometimes exceedingly difficult to distinguish certain closely related species, especially in the case of QQ, where external distinguishing characters are not very clear or obvious. In the large number of species dealt with in this revision, it was found that Loew and Bezzi's method of grouping the various species on the presence or absence of wing-infuscation or on the nature and distribution of such infuscations is not very satisfactory owing to the fact that some species grade so imperceptibly into others, as far as wing-characters are concerned, that their allocation to either one or other group is almost impossible in a key. In the key given below, which itself is not a natural one, a variety of more suitable characters have been exploited for distinguishing the various species as a result of which species with infuscated wings or even other related characters sometimes come in juxtaposition with forms having more hyaline wings. Both the arrangement of the species in the key and in the groups and sections in the text is thus not always based on their true natural or specific affinities.

## Key to the South African species of Lomatia seen by me

- 1. (a) Knobs of halteres entirely or predominantly very pale above; antennal joint 3 usually more frequently gradually broadened basally below, more club-shaped or leek-shaped, rarely rapidly broadened or bulging basally below.
  - (b) Knobs of halteres distinctly darker above, yellowish brownish, brownish, dark brown to dark chocolate brownish; antennal joint 3 more frequently more rapidly broadened or bulging basally below, more distinctly bulb-shaped or golf-driver-club-shaped, this lower basal part rarely not prominently bulging.

- 2. (a) Proboscis (text-fig. 40, b) markedly short, thick, plump and stout, usually confined to buccal cavity or scarcely projecting beyond its apex, its labellar lobes broad, well developed, ovoid or elliptical, appearing broad and fleshy like that of Muscid-flies, resembling two cupped hands when opened, with the basal part of proboscis comparatively short, thick, stoutish and usually not much longer than labella, and both it and the labella with more conspicuous, coarser and longer spinules; face not prominent apically or appearing subconically prominent from side, its medial and apical part thus not raised or convex, and the apex of buccal cavity not ending sharply in it.
  - (b) Proboscis (text-fig. 53) always more elongate, comparatively longer, distinctly more slender, with part of it or the labellar lobes usually projecting a little or even considerably beyond apex of buccal cavity to at least level of apices of first antennal joints and, if scarcely projecting, the labella itself is distinctly narrower, more elongate and pointed apically, rarely short, broad and ovoid or resembling two cupped hands, but if ovoid the basal part of proboscis is elongate and much longer than labella and, if the latter is only slightly shorter than base, the labella at least is narrow and pointed apically, with the spinules usually less coarse and conspicuous on basal part; face usually appearing slightly, though distinctly, more subconically prominent apically, its medial and apical part thus more convex or raised, and the apex of buccal cavity ending sharply in it.
- 3. (a) Antennal joint 3 (text-fig. 40) comparatively long, almost rod-like, very gradually narrowed apically; antennal joint 1 usually distinctly longer, quite, or distinctly more than, twice length of joint 2; interocular space on vertex in 33 relatively much broader, almost or quite as broad as length of antennal joint 1; wings comparatively elongate, narrowish, either entirely infuscated or so extensively tinged brownish or blackish brown that even clearer areas appear more greyish; discoidal cell markedly elongate, narrow; vein between submarginal cells originating at right angles and provided with a more conspicuous and longer basally directed appendix; hair on body above predominantly dark and that below whitish; pale scaling on abdomen above in broader transverse bands; spines and spicules on femora and tibiae more numerous, more strongly developed; larger species, about 9-13 mm. long, with a wing-length of about 11½-17 mm.
  - (b) Antennal joint 3 (text-fig. 45) relatively shorter, usually more broadened basally, more knob-like or club-shaped at base, the apical half or more slender, the joint thus bulb- or club-shaped or even golf-driver-club-shaped; antennal joint 1 distinctly shorter, less or much less than twice length of joint 2; interocular space on vertex in 33 distinctly very much narrower than length of antennal joint 1, usually separated by the small ocellar tubercle or by a space even narrower than tubercle; wings relatively broader, less elongate, usually less infuscated, the tinged or infuscated parts, if present, less extensive in relation to rest of wing-surface, or wings predominantly hyaline; discoidal cell relatively much shorter, broader; vein between submarginal cells usually without or with only a vestige of an appendix if it originates at right angles to third vein; hair on body predominantly whitish, that on body above without any or with less extensive black hairs, though the prealar bristles may sometimes be black; pale scaling on abdomen above in narrower, less conspicuous bands; spines on femora fewer and spicules on tibiae fewer, distinctly less strongly developed; smaller forms, usually less than 10 mm. long, with a wing-length less than 12 mm.
- 4. (a) Wings more yellowish brownish to pale chocolate brownish in anterior costal half including the entire first basal cell and extending across from a little beyond apex of costal cell across basal part of first submarginal cell, greater part of first posterior cell to base of second posterior cell, with the apical and hinder parts of wings, including greater part of second basal cell and the discoidal cell, more distinctly greyish, appearing clearer; sides of abdomen with more extensive and more conspicuous yellowish hair; transverse bands of pale scaling on abdomen above broader, more conspicuously brassy or golden yellowish; slightly smaller form, about 9-12½ mm. long, with wings about 11½-15 mm. long.

(b) Wings darker, more extensively dark chocolate brownish to almost blackish, without any clearer or less-tinged, more greyish, apical part, either without any extensive

- (a) Wings dark brownish to chocolate brownish, but with the greater part of second basal cell, discoidal cell, anal cell, axillary lobe and to a great extent also third and fourth posterior cells appearing clearer; hair on frons in front, sides of face and genae distinctly more sericeous yellowish, that on squamae more yellowish; transverse bands of pale scaling on abdomen above distinctly narrower, less evident; scaling on legs predominantly pale or more dull whitish.

  3 ♀ acutangula var. transvaalensis n. (p. 183)
  - (b) Wings almost entirely very dark or blackish, the clearer areas in second basal cell, discoidal cell and posterior parts almost absent or inconspicuous, the anal and axillary cells being as dark as greater part of wings; hair on frons in front, sides of face and genae more whitish, that on squamae whitish; transverse bands of pale scaling on abdomen more conspicuous and distinctly more yellowish; scaling on legs darker.

♂ ♀ neavei Bezz. (p. 184)

- 6. (a) Wings more distinctly and more darkly infused with yellowish brownish to dark brownish in anterior costal half, the infusion occupying base, alula, costal cell and entire first basal cell or in addition also basal parts or halves of marginal and first submarginal cells and sometimes to a certain extent also second basal cell, and usually also with distinct, even if faint, spot-like infusions on apical cross veins of basal cells.
  - (b) Wings predominantly glassy or vitreous hyaline, less infused anteriorly, with only the base, alula, costal cell and base or anterior basal part of first basal cell subopaquely yellowish whitish or yellowish and without any indication of spot-like infusions on apical cross veins of basal cells.
- 7. (a) Wings with the anterior basal two-thirds, comprising the base, alula, costal cell, more than basal half of marginal cell, basal part of first submarginal cell, entire first basal cell and second basal cell characteristically dark coffee brownish, the infusion well marked off from hyaline part; distinct, large, rounded spots on cross veins of basal cells and smaller ones at base of vein between discoidal and third posterior cells on apical cross vein of discoidal cell and at base of vein between submarginal cells; legs entirely yellowish or very pale yellowish brownish; antennal joint 3 more gradually broadened basally, more bulb-shaped at base, the lower basal part not very prominently bulging; black hairs present on sides of tergites 3 or 4 to apex and without any black hairs on antennae below; prealar bristles yellowish or reddish brownish.

8. (a) Wings with the untinged apical and hinder parts glassy or vitreous hyaline; tibiae scarcely or not much paler than the dark blackish brown femora; antennal joint 3 with the base below slightly less produced; dense or numerous black hairs on antennae below in 33 and usually with fewer or without any black ones in \$\pi\$; black hairs or tufts on sides of abdomen confined to sides of tergites 5-7 (or 8); hair on body above and on sides of abdomen posteriorly in \$\pi\$ tinted sericeous yellowish to pale golden yellowish; more numerous and denser golden yellowish scaling above in \$\pi\$, the scaling occupying most of the discal part of abdomen and with the black scaling much reduced.

(b) Wings with the untinged apical and hinder parts distinctly more greyish; tibiae yellowish brownish, distinctly much paler than dark femora; antennal joint 3 with the base below distinctly more prominently bulging; hairs on antennae below in ♀ without any dark ones; black hairs or tufts on sides of abdomen more conspicuous on sides of tergites 6-7; hair on body above straw-coloured or scarcely less white than that below; scaling above in ♀ with more black ones on abdomen, the pale ones more brassy yellowish, more concentrated across hind margins of tergites.

♀ matabeleënsis n. sp. (p. 188)

10. (a) Tergites 5-7 (or 8) on sides with black hairs or tufts; hair on front part of thorax usually slightly tinted yellowish to yellowish brownish in certain lights and that on body above and sides of abdomen in \$\text{9}\$ often pale sericeous yellowish; alula and axillary lobe more reduced, the latter slightly narrower; first posterior cell more subparallel-sided, not narrowed apically.

(b) Sides of abdomen entirely with sericeous whitish or straw-coloured hairs; hair on thorax (excepting dark collar hairs in some forms), body above and on sides of abdomen in known ♀♀ entirely sericeous whitish like that in ♂♂; alula and axillary lobe more developed, the latter markedly broad, more obtusely rounded; first posterior cell tending to be slightly narrowed apically.

(b) Antennal joint 3 more gradually narrowed basally below, more club-like or bulb-shaped at base; hairs on antennae above and below with numerous black ones; hairs on body above in ♀ paler sericeous yellowish or more whitish; discoidal cell longer, subequal in length to first posterior cell; second and third posterior cells tending to be equally broad apically; interocular space in ♀ very slightly broader, quite, or a little more than, twice width of tubercle. ♀ mitis Lw. (p. 190)

12. (a) Tibiae dark like femora; basal joint of front tarsi in ♀♀ without any longish, bristly spicules below; first posterior cell as long as or longer than discoidal cell; hair on greater part of frons, even in ♀♀, not entirely sericeous or snow-whitish, that on at least basal half dark; white hair on body gleaming more sericeous whitish and the scaling in ♀♀ more brassy yellowish; frons in known ♀♀ distinctly less broad, less or much less than 3 times as broad as distance between outer margins of posterior ocelli on vertex; hair on frons in front more confined to sides of depression; smaller form, less than 8-9 mm. long, with wings less than 8-9 mm. long.

(b) Tibiae pale yellowish or pale yellowish reddish; basal joint of front tarsi in QQ with some distinct, longish, bristly spicules below; first posterior cell distinctly shorter than discoidal cell; hair on greater part of frons, in QQ at least, entirely snow-whitish; hair on entire body snow-whitish, gleaming less and scaling above also more whitish; frons in QQ remarkably broad, on vertex quite 3 times distance between outer margins of posterior ocelli; hair on frons in front denser, more uniformly distributed in depression; larger forms, about 8-9 mm. long, with a wing-length of about 8-9 mm.

Q latifrons n. sp. (p. 191)

13. (a) Hair on body above and below and on abdomen gleaming sericeous whitish in both sexes, that on antennae below also sericeous whitish; two dark or black prealar bristles sometimes present; anterior frontal depression slightly deeper; first posterior cell slightly more narrowed apically. . . . ♂♀ leucophasia n. sp. (p. 192)

(b) Hair on thorax, especially antero-laterally, and that on sides of abdomen towards apex tinted slightly more sericeous yellowish, that on body below more straw-coloured in

- 14. (a) Wings more extensively and more conspicuously infuscated, infused or deeply tinged yellowish brownish, brownish or blackish brown, this infuscation either uniform and diffused throughout the wings, or more or less in form of transverse bands or infusions occupying the basal or anterior basal two-thirds and, if more or less confined to anterior half, the infusion extends also into posterior or hinder parts as infusions along the veins between discoidal and posterior cells or also to a certain extent narrowly along the veins between posterior cells, the hinder part of wings thus not entirely clear or hyaline throughout.
- 15. (a) Wings more uniformly infused or tinged yellowish brownish to brownish, the darker anterior half imperceptibly merging into less darkly tinged parts, there being no distinct tendency for transverse bands or infuscations to be present or for the apical part to be more contrastingly hyaline or untinged and untinged and clearer contrasting cells not evident.
  - (b) Wings not uniformly and diffusely tinged or infuscated throughout, the infusion either more or less in form of transverse bands or infusions of darker and more yellowish parts and, if tending to be more uniformly infuscated, the apical part or apical half, or some of the cells in the middle, contrastingly clearer or more hyaline.
- 16. (a) Wings more darkly and more uniformly infused with coffee brownish throughout, becoming slightly darker in anterior costal part, the slightly less-tinged hinder and axillary parts not tending to contrast with anterior part; hair on frons, sides of face, genae and on body above and below predominantly deep golden yellowish, the black hair on sides of abdomen less dense and conspicuous. 

  \$\times\$ infuscata Bezz. (p. 209)
  - (b) Wings, though tinged yellowish brownish or faintly brownish throughout, with the base, costal cell, more than basal halves of marginal and first submarginal cells and entire first basal cell distinctly more contrastingly darker, the apical, hinder and axillary parts thus appearing less infused; hair on frons in front more sericeous whitish or silvery, that on antennae below, sides of face and on genae also more sericeous whitish and, if yellowish, wings not so uniformly tinged, that on rest of body either predominantly paler or more straw-coloured and, if golden, hair on frons is white, with the black hair on sides of abdomen denser, more conspicuous or tuft-like.
- - (b) Proboscis longer, its labellar lobes elongate, at least as long as, or longer than, antennal joint 3, narrow and pointed apically, not like two cupped hands when opened; face more distinctly convex medially; antennal joint 3 more rapidly bulb-like basally; hair more sericeous yellowish to golden yellowish above and either sericeous yellowish or less contrastingly whitish below; black hairs present on sides of tergites 2-7 (or 8) and, if confined posteriorly, hair is not white below; outer apical aspect of hind femora with fewer, only about 2-4, spines.
- 18. (a) Hairs on frons in front pale sericeous yellowish, the black ones on sides of abdomen confined to sides of tergites 5-8; palps long, nearly or about as long as antennae; apical vein of discoidal cell joining first posterior cell not opposite base of vein between submarginal cells; larger form, about 11 mm. long, with a wing-length of about 13 mm.

- (b) Hairs on frons in front gleaming sericeous whitish, the black ones on sides of abdomen present on sides of tergites 2-7 (or 8); palps shorter or much shorter than antennae; apical vein of discoidal cell joining first posterior cell at a point about opposite that of base of vein between submarginal cells; smaller forms, usually less than 11 mm. long.
- 19. (a) Hair on almost entire frons and even greater part of ocellar tubercle, on antennae below, sides of face and genae gleaming sericeous or silvery whitish; that on body above slightly paler sericeous yellowish; that on pleurae distinctly more whitish in certain lights; three prealar bristles black; black hair on sides of abdomen very much denser, more conspicuous, more tuft-like; scaling above paler sericeous yellowish; first posterior cell more narrowed apically, distinctly much shorter than discoidal cell; proboscis slightly longer, about 3 mm. long, not visibly spinulated below; antennal joint 3 slightly longer, its styliform part almost 3 times as long as bulb-like base; middle and hind femora with about 3 or 4 spines; basal joint of front tarsi in \$\to\$ fucatipennis n. sp. (p. 211)
  - (b) Hair on only anterior half of frons conspicuously silvery whitish, that on antennae below and sides of face gleaming sericeous yellowish to deep yellowish, also with numerous black hairs on inner lower aspect of antennae and those on genae more sericeous yellowish; that on body above deeper yellowish or golden and that below scarcely paler; prealar bristles yellowish; black hairs on sides of abdomen not very dense or tuft-like; scaling above gleaming deeper golden yellowish; first posterior cell more parallel-sided, subequal in length to, or only a little longer than, discoidal cell; proboscis slightly shorter, about 1.6−2 mm. long, distinctly finely spinulated; antennal joint 3 slightly shorter, its styliform part relatively shorter, less than 3 times length of bulb-like base; middle and hind femora with only about 1 or 2 and 2 spines respectively; basal joint of front tarsi in ♀ with distinct, longish, bristle-like spicules below.

    ♀ pulchriceps var. tinctella.n. (p. 276)
- (a) Wings with a characteristic infuscation, either in the form of three more or less well defined transverse bands of which the broad medial one is subopaquely yellowish and the broad preapical band and somewhat broken-up basal one are dark, blackish brown to almost purplish brown, or infuscation in form of a very broad preapical blackish brown or purplish brownish band and an equally broad blackish brown base, separated by a subopaquely yellowish medial band which does not extend across to hind border, the preapical band in both cases occupying and extending across almost entire apical half of marginal cell, greater medial or preapical part of first submarginal cell, basal half of second submarginal cell, entire or almost entire first posterior cell and across greater part of first basal cell and apical part of discoidal cell to hind border, the dark basal infuscation conspicuous in basal half of first basal cell and again in apical half or part of anal and axillary cells, the apex of wings and greater part of axillary lobe being clear or greyish hyaline and the alula and sometimes second basal cell yellowish like the middle band; antennal joint 3 with its slender styliform part markedly slender, fine, almost bristle-like. . . . . . . .
  - (b) Wings with a different pattern, not so characteristically marked with three, distinct, broadish, transverse bands and, if with a tendency for three bands to be present, these are not so well marked off and preapical band not so well defined, or much narrower, more broken up, appearing more jagged and extending only from about end of costal cell across apical part of discoidal cell towards hind border, leaving a very much larger apical area clear or vitreous hyaline in at least apical third of wings and the dark basal infuscation is practically confined to basal half of first basal cell, the anal and axillary cells being clear or hyaline, not distinctly infuscated apically; antennal joint 3 with its styliform part usually thicker, not so fine and bristle-like and, if fine, infuscation in wings different.
- 21. (a) Wings with the three transverse bands more distinct and more well defined, the broad medial band broader, more subopaquely yellowish and extending to, or very near to, hind border and thus delimiting a well-defined broad preapical band and the second basal cell also yellowish like middle band; hair on frons, antennae below, face, genae and on body above predominantly deeper yellowish, golden yellowish to deep orange

yellowish; that on sides of abdomen usually gleaming very deep reddish golden or orange golden; black hair on sides of abdomen less extensive, confined to terminal part on sides of tergites 6–7 (or 8); tibiae dark, not or scarcely visibly paler than black femora; palps much longer, subequal in length to antennal joint 3.

♂ ♀ pictipennis (Wied.) (p. 212)

(b) Wings (text-fig 57) with the three bands less distinct and delimited, the narrower medial band more subopaquely yellowish whitish and not continued beyond discoidal cell, in which cell it becomes very conspicuous as an elongated subopaquely whitish spot, the dark preapical band thus continuous with dark basal infuscation along hinder part of wings and across posterior cells and the second basal cell not yellowish, but dark like basal half of first basal cell, fourth posterior cell and apical half of anal cell; hair on head in front and on body above predominantly sericeous whitish or very pale sericeous yellowish, scarcely contrasting much with the whitish hair on pleurae and body below; that on sides of abdomen also distinctly more whitish; black tufts on sides of abdomen more extensive, more conspicuous and even present on sides of tergites 3-7 (or 8); tibiae distinctly very much paler, pale yellowish brownish or yellowish; palps very much shorter, much shorter than antennal joint 3.

♂ ♀ phaenostigma n. sp. (p. 215)

- 22. (a) Hair on thorax and scutellum above without any intermixed black or blackish hairs; sides of abdomen without any extensive black hairs or tufts and these, if present, more or less confined to sides of tergites 5-7 (or 8) or posteriorly; hairs on body above and sides of abdomen usually more distinctly and more conspicuously yellowish to deep yellowish or orange yellowish, rarely whitish; infuscated parts in wings paler, more yellowish or yellowish brownish.
  - (b) Hair on thorax and scutellum above with some, or numerous, intermixed dark or blackish bristly hairs and, if without, sides of abdomen with distinctly more extensive black hairs or tufts on sides of tergites 2 or 3-7 (or 8); hairs on body above and on sides of abdomen distinctly paler, usually more whitish, appearing more greyish white or only pale sericeous yellowish; infuscated parts in wings on the whole darker, more brownish, dark brown to dark coffee brownish.
- 23. (a) Infuscation in wings more extensive or more diffused, sometimes more uniform, either with only the apex, apical part or almost apical half clearer or clear hyaline, or with the apical part, second basal cell to a variable extent, discoidal cell to a variable extent, part of or greater part of anal cell and to a large extent axillary lobe distinctly clearer or more hyaline, the hinder part of wings, in region of posterior cells, howerve not predominantly hyaline, but also more or less tinged to a variable extent, or at least more conspicuously and more extensively infused along posterior veins.
  - (b) Infuscation in wings less extensive, less uniform in colour, more broken up into yellowish and brownish and even tending to show an ill-defined, darker, preapical, transverse band, with at least apical third, hind border or hinder part in region of posterior cells and axillary, anal, discoidal and second basal cells predominantly or entirely hyaline or vitreous hyaline and the infusions along posterior veins much reduced or absent and, if indicated, with a tendency for a dark preapical band and a yellowish medial band to be present.
- 24. (a) Wings not dimidiately infuscated, the clearer or clear apical part less extensive, the infuscated parts thus more extensive, extending in apical part from about end of costal cell or even from beyond it either diffusely or irregularly across to first posterior cell, the base of second submarginal cell always more or less infuscated to a variable extent and the second basal, discoidal, greater part of or entire anal and axillary cells contrastingly clearer or more hyaline.

- 25. (a) Wings distinctly more extensively and to a certain extent more uniformly infuscated dark reddish brownish or dark brown, the costal cell and basal halves of marginal and first submarginal cells also darker yellowish, with only the extreme apical part, the middle parts of posterior cells and basal three-quarters of axillary lobe clearer or more whitish and greater part of discoidal cell, second basal cell, more than basal half of anal cell subopaquely pale yellowish; hair on front part of frons in both sexes, on antennae below in ♀ and squamal fringe more sericeous yellow or pale golden; rest of hair on body above golden yellowish, becoming more fulvous or orange yellowish on sides of abdomen posteriorly.
- 26. (a) Legs very pale yellowish brownish or reddish brownish and, if femora are slightly darker than tibiae, they nevertheless show much yellowish or reddish brownish, sometimes preapically; larger forms, about 14-16½ mm. long, with a wing-length of about 15-19½ mm.
  - (b) Legs entirely dark or blackish; smaller forms, about 11½-13 mm. long, with a winglength of about 12-14 mm.
- 27. (a) Wings slightly narrower, their apices more pointed, the clearer apical part less extensive and distinctly more whitish, the second basal, discoidal and greater part of anal cells more subopaquely whitish; vein between discoidal and second posterior cells short, straight; intermixed blackish or blackish brown hairs on antennae below; hair on body above gleaming deeper yellowish to deep golden yellowish, that in front of wing-bases yellowish or even orange yellowish and that on sides of abdomen sometimes also more orange yellowish; hind margins of sternites rather broadly, more conspicuously pallid or yellowish; legs very pale yellowish brownish or more yellowish.

3 longitudinalis Lw. (p. 218)

(b) Wings distinctly broader, less sharply pointed, the clearer apical part more extensive, more greyish hyaline, the second basal, discoidal, anal and axillary cells also more hyaline; vein between discoidal and second posterior cells longer, more S-curved; hair on antennae above and below entirely sericeous whitish; hair on body above paler, gleaming more sericeous whitish, that in front of wing-bases and on sides of abdomen very pale sericeous yellowish in certain lights, sericeous whitish in others; hind margins of sternites very narrowly pallid; legs more reddish brownish.

& bevisii n. sp. (p. 220)

- 28. (a) Infuscation in wings less extensive, less dark, paler yellowish brownish, the middle of posterior cells clearer, the infuscation not extending very much beyond end of costal cell or cubital fork, leaving a larger apical part of wings uninfuscated, the greater part or apical half of first posterior cell being also uninfuscated; second basal cell either entirely or almost entirely clearer; vein between discoidal and second posterior cells longer, more sinuous and S-curved; second posterior cell much broader apically than third; axillary lobe broader, more rounded posteriorly; black hairs present only on sides of tergites 6-7 (or 8); stylar part of antennal joint 3 distinctly shorter, shorter than joint.
  - (b) Infuscation in wings more extensive, much darker, more brownish, the middle parts of posterior cells distinctly less clear, the infuscation extending considerably beyond end of costal cell and cubital fork and across to apex of first posterior cell (the entire cell being more or less infused); second basal cell only clearer apically; apical vein of discoidal cell very much shorter, substraight or only feebly sinuous; second and third posterior cells equal or subequal in width apically; axillary lobe much narrower, less

rounded posteriorly; black hairs present on sides of tergites 5-7 (or 8); stylar part of antennal joint 3 more slender, longer, as long as or even slightly longer than joint.

3 \$\times \text{apicalis n. sp. (p. 220)}\$

- 30. (a) Wings (text-fig. 63) comparatively longer, the basal comb more developed, the infuscation in more or less the basal two-thirds slightly less uniform, the second basal and discoidal cells slightly, though distinctly, paler, more yellowish than brownish, sometimes even tending to be more hyaline, the anal and axillary cells and greater part of third and fourth posterior cells distinctly more hyaline or greyish hyaline and not distinctly tinged throughout; styliform part of antennal joint 3 longer, about or almost 2 times as long as bulb-like base; hair on the whole more straw-coloured yellowish above, with some black hairs on antennae below in 3 and with black ones on sides of tergites 5-7 (or 8); tibiae paler, more yellowish.
  - (b) Wings comparatively shorter and broader, the basal comb more reduced, the infuscation in slightly less than basal two-thirds more uniformly yellowish brownish or pale brownish, gradually and almost imperceptibly becoming paler posteriorly, the second basal and discoidal cells thus not contrastingly paler, the anal and axillary cells and third and fourth posterior cells thus not hyaline but distinctly, though faintly, tinged throughout; styliform part of antennal joint 3 slightly shorter, scarcely or only about 1½ times length of bulb-like base; hair, especially in \$\oigle \operation\$, deeper and more golden yellowish above and on sides of abdomen, without any black ones on antennae below and either without any black ones on abdomen or with only a few on sides of tergites 6 and 7 (or 8); tibiae darker, either dark or more reddish brownish.
- 31. (a) Infuscation in wings slightly paler yellowish brownish, more delimited from hyaline apical part; discoidal cell more truncate apically; some distinct black hairs or tufts on sides of last two or three tergites; hair on thorax above and sides of abdomen, in & at least, paler, more straw-coloured; labella of proboscis shorter, shorter than antennal joint 3 and without visible spinules on basal part of proboscis.
  - $\mathcal{F} \cap \mathcal{F}$  hemichroa n. sp. (p. 228)
  - (b) Infuscation in wings slightly darker brownish, less marked off from apical part, the apical part of infusion appearing darker and sub-band-like across wings; discoidal cell distinctly more angularly pointed apically; sides of abdomen without any black hairs; hair on thorax above and sides of abdomen in 3 distinctly golden yellowish; labella very long, longer than antennal joint 3 and both it and base of proboscis with distinct spinules.
- 32. (a) Wings (text-fig. 67) with a fairly characteristic pattern, consisting of a subopaquely yellowish infusion at base and along costal part, extending across from apex of costal cell in form of a distinct, somewhat darker, more brownish, jagged and irregular preapical band, the darker brownish of this preapical band being more evident as infusions along veins in this region, the second basal and discoidal cells more or less

- clear like hinder parts, but with narrowish infusions along veins separating discoidal and third posterior cells and sometimes also along vein between third and fourth posterior cells.
- (b) Wings (text-figs. 63, 69) with the infuscated parts either in form of a more or less subopaquely yellowish whitish infusion in anterior half up to end of costal cell, or in form of a more uniform yellowish or brownish dimidiate infuscation in anterior basal two-thirds, there being no distinct and more or less contrasting darker preapical band, the second basal and discoidal cells either clear hyaline or scarcely clearer than anterior infusion.
- 33. (a) Hair on frons anteriorly and on antennae below with a more distinct and deeper sericeous yellowish to yellowish tint; that on thorax and body above distinctly deeper yellowish, deep golden to orange yellowish; that on sides of abdomen strikingly orange yellowish in both sexes; that on pleurae and venter straw-coloured whitish; that on squamae distinctly yellow; sparse black hairs only on sides of tergites 6-8 in ♂ or on sides of 7 in ♀; pale scaling above also deeper yellowish; discoidal cell subacute or subtruncate apically; tibiae darker, more dark reddish brownish or blackish brown.

  ♂ ♀ pseudofasciata n. sp. (p. 229)
  - (b) Hair on frons, antennae below, face and genae gleaming sericeous whitish or yellowish to a lesser extent; that on thorax and body above distinctly paler, gleaming more pale sericeous yellowish, straw-coloured yellowish or creamy; that on sides of abdomen very much paler, sericeous whitish in 33 to sericeous yellowish or creamy in \$2\$; that on pleurae and venter distinctly more contrastingly sericeous white; that on squamae sericeous whitish to creamy; more numerous black hairs on sides of tergites 4-7 (or 8) and, if without black ones, hair on sides not very deep golden or orange yellowish; pale scaling above gleaming much paler sericeous yellowish; discoidal cell distinctly more acute apically: tibiae usually paler, more yellowish.
- 34. (a) Tibiae distinctly paler, more pale yellowish brownish; first posterior cell less narrowed, broader apically, about as broad there as length of middle cross vein; hairs in ♀ without any black ones on sides of abdomen, only a few being present on last tergite.

© grahami n. sp. (p. 232)

(b) Tibiae darker, more reddish brownish or dark castaneous brownish; first posterior cell distinctly more narrowed apically, more spindle-shaped, its apical width less than length of middle cross vein; hairs in ♂ with black ones on sides of tergites 4-8 and in ♀ on sides of 4 (or 5)-7. . . . . ♂ ♀ asaphodesma Hesse (p. 233)

- - (b) Wings (text-fig. 63) more or less dimidiately infuscated, the anterior basal two-thirds more or less uniformly yellowish brownish to brown, the apical part of infusion well marked off from the more hyaline part and with the infusion occupying the base, alula, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell, second basal cell to a certain extent and discoidal cell and even extending as infusions along veins separating discoidal cell from posterior cells, the infusion on apical cross vein of second basal cell larger, more spot-like; interocular space in ♂, at narrowest part, much narrower than length of antennal joint 2 and in ♀ about, or a little more than, 2 times distance between outer margins of posterior occlli; smaller species, about 8-114 mm. long, with a wing-length of about 94-13 mm.
- 36. (a) Hair on thorax and scutellum above without any intermixed black ones, entirely sericeous whitish or yellowish.
  - (b) Hair on thorax above or also on scutellum with distinct, fine, intermixed, black ones, sometimes only visible on sides discally or basally.

- 37. (a) Black hairs or tufts on abdomen present on sides of tergites 3 or 4 or 5 to 7 (or 8); tibiae paler, more conspicuously yellowish or pale yellowish brownish; infuscation in wings more yellowish, yellowish brownish or brownish and, if dark, costal cell more yellowish.
- 38. (a) Wings very darkly and more extensively infuscated, the clear apical area being less extensive, the infuscation extending to slightly beyond apex of costal cell and sometimes also more extensively along posterior veins or even hinder part may be predominantly infused, with a tendency for the clearer area in discoidal cell to be conspicuous as a more or less elongated clear eye-like spot and with the greater part of anal and axillary cells and sometimes also greater part of second basal cell also clearer like apical part.
  - (b) Wings usually less dark, paler yellowish brownish or brownish in anterior two-thirds, thus less extensively infuscated, the clear apical area more extensive, the infuscation ending at about level of apex of costal cell and an infusion, if present in hinder parts of wings, only narrowly confined as an infusion along veins separating discoidal cell from posterior cells, the greater part of wings posteriorly thus clear or hyaline like apical part and the anal, axillary and fourth posterior cells, with the clear discoidal and second basal cells thus not conspicuous as isolated eye-like spots.
- 39. (a) Wings (text-fig. 57) with a more distinct tendency for the extensive dark blackish or purplish brown infuscation to be broken up by an abbreviated, medial, subopaquely yellowish whitish, transverse band marking off a dark basal part and a very broad uniformly dark preapical part, occupying practically the entire apical half of marginal cell, greater medial part of first submarginal cell, basal half of second submarginal cell, almost entire first posterior cell, entire second posterior cell and the apical part of discoidal cell, with the hinder part of wings also entirely dark like preapical part, and the second basal, fourth posterior and apical half of anal cells also dark, with the elongated subopaquely whitish area in discoidal cell thus appearing as a more conspicuous isolated spot; apical part of second main vein less sinuous and recurved.
  - 3 ♀ phaenostigma n. sp. (p. 215)
  - (b) Wings with the extensive dark blackish brown infuscation either more uniform and, if tending to be broken up by a medial subopaquely yellowish band, the dark preapical band or part is distinctly less uniformly extensive and does not occupy all these cells or border their veins to the same extent, with the hinder part of wings less infused, being very dark only along the veins, the second basal, greater part or entire fourth posterior, the entire or greater part of anal and entire axillary cells more conspicuously clear or hyaline, with the elongated whitish hyaline area in discoidal cell, though evident, thus less isolated and both it and the second basal cell appearing clear; apical part of second vein distinctly more deeply sinuous and more recurved. . . . 40
- 40. (a) Infuscation in anterior part of wings more uniform, scarcely or not broken up by a medial transverse yellowish region, extending apically to end of second vein and thus occupying greater part of marginal cell and also extending across basal part of second submarginal cell and greater part of first posterior cell, the apical more hyaline part thus less extensive; hair on antennae below with numerous or a distinct tuft of black ones; that on body above distinctly more yellowish, especially on sides of abdomen, contrasting more with whitish ones on pleurae and venter; black tufts on sides of abdomen less dense, less conspicuous and usually present on sides of tergites 2-7 (or 8).
  - (b) Infuscation in anterior part of wings less uniform, more distinctly broken up in middle by a transverse subopaquely yellowish area into a dark blackish brown preapical part and a similarly coloured basal part, the preapical band not extending to apex of marginal cell nor across base of second submarginal cell or greater part of first posterior cell, the more hyaline apical part thus distinctly more extensive and also with the basal part of first submarginal cell subopaquely whitish like elongate area in discoidal cell;

antennae below without any black hairs; hair on body above and on sides of abdomen predominantly more whitish, only the prealar, postalar and scutellar bristles gleaming yellowish to golden, the hair above not contrasting much with white ones below; black hairs on sides of abdomen more conspicuous, denser, more tuft-like and present on sides of tergites 3–8.

3 \$\phi\$ (especially \$\preceq\$) phaenostigma n. sp. (p. 215)

- 41. (a) Larger form, about 11½-14 mm. long, with a wing-length of about 13-15 mm.; basal comb more strongly developed; base, costal cell, basal halves of marginal and first submarginal cells and first basal cell in wings distinctly much paler, more subopaquely yellowish, only apical part of this infusion transversely darker and band-like from end of costal cell across to apex of discoidal cell, this dark part emphasized along veins in this region; tibiae, though reddish yellowish, tending to be less conspicuously pale.

  δ ♀ asaphodesma Hesse (p. 233)
  - (b) Smaller species, less than 11 mm. long, with a wing-length less than 13 mm.; basal comb smaller; infuscation in wings occupying base, costal cell, basal halves of marginal and first submarginal cells and entire first basal cell and also extending as a narrow infusion along lower vein of discoidal cell darker, more uniformly brownish to dark brownish, without a well-defined, transverse, band-like preapical part; tibiae paler, more conspicuously yellowish.
- 42. (a) Antennal joint 3 more gradually broadened basally, more leek-shaped at base, its styliform part not very fine; face more convex medially, slightly subconically prominent apically; hair on antennae below gleaming more sericeous yellowish and usually with a few distinct black ones below; hair on thorax above and on sides of abdomen straw-coloured yellowish, sericeous yellowish to yellowish, contrasting with the whitish ones on pleurae and venter; infuscation in wings more yellowish brownish, the second basal and discoidal cells on the whole clearer. . . 3 \$\infty\$ kaokoana n. sp. (p. 236)
- - (b) Hair on antennae below with distinct intermixed black hairs; that in collar-region with conspicuous dark ones; black hairs on sides of abdomen distinct and conspicuous only on tergites 5, 6 and 7; antennal joint 3 with a much broader base, more bulb-like, its stylar part relatively shorter; labella of proboscis relatively longer, subequal in length to basal part; tibiae in ♀ at least much darker, not conspicuously yellowish.

♂♀ basutoënsis n. sp. (p. 239)

- 44. (a) Infuscated parts in wings less dark, appearing broken up into more or less three illdefined transverse bands, due to the basal half of costal cell and basal half of first basal
  cell and a preapical, irregular, band-like infusion across wings being visibly darker and
  more brownish and these being separated by a subopaquely yellowish whitish medial
  band which occupies the apical half of costal cell, basal halves of marginal and first
  submarginal cells and to a lesser extent also apical half of first basal cell and which is
  more discernible when viewed obliquely from behind; tibiae distinctly paler, more
  yellowish or reddish yellow and even femora more castaneous or dark reddish brownish.
  - (b) Infuscated parts in wings on the whole darker, more coffee brownish to blackish brown, appearing less broken up into transverse bands, a broadish, medial, yellowish area not or scarcely evident, the infusion in entire costal cell, more than basal half of marginal cell and entire first basal cell being more uniformly brownish or dark brownish, only

the basal half of first submarginal cell sometimes clear like discoidal and second basal cells; tibiae distinctly darker, dark reddish brownish to almost black like the femora.

- 45. (a) Wings (text-fig. 73) distinctly tinged greyish or smoky greyish throughout, only discoidal and second basal cells appearing more hyaline, the alula, base, costal cell, basal part of first basal cell slightly yellowish, with an indistinct, darker, preapical band from end of costal cell across to base of second posterior cell, a slight cloudiness along posterior veins and also along vein between anal and axillary cells and spot-like infusions on apical cross veins of basal cells; pale hair on sides of abdomen distinctly deeper golden yellowish or orange golden on tergites 4-8; scaling on sides of these tergites also orange golden; hair on antennae below with fewer black ones and black ones on sides of tergites 2 or 3-8 less conspicuous and less dense; tibiae and apices of femora distinctly paler, more yellowish; antennal joint 3 shorter, its broadened base more gradually broadening and its styliform part relatively shorter, only about a third length of joint.
- 46. (a) Hair on antennae below tinted distinctly more yellowish and also with more numerous black ones; that on thorax and scutellum above and on sides of abdomen in posterior half gleaming distinctly more brownish golden or even golden, with more numerous intermixed black hairs on thorax anteriorly, discally and on scutellum, and also with intermixed reddish golden ones on thorax above and in mesopleural tuft; prealar, postalar and scutellar bristles more reddish golden; sides of tergites 2–7 (or 8) with tufts of black hairs; infuscated parts in wings coffee brownish, the costal cell more opaquely yellowish, the basal half of first submarginal cell appearing distinctly clear like second basal and discoidal cells and the more hyaline apical part of wings less whitish in certain lights.
  - (b) Hair on antennae below distinctly more sericeous whitish like rest of hair on face and frons anteriorly, without any or with much fewer black ones below; that on thorax and sides of abdomen gleaming more sericeous whitish or straw-coloured, scarcely or not contrasting with the white ones below, with the fine intermixed black hairs on thorax less evident and almost confined to disc or sides and sometimes also on scutellum, without any or with fewer reddish golden hairs; thoracic bristles more yellowish; only sides of tergites 3-7 (or 8) with tufts of black hairs; infuscated parts in wings (text-fig. 76) duller brownish, the entire first basal cell and to great extent also basal half of first submarginal cell more uniformly coloured, the latter cell thus not as clear as second basal and discoidal cells and the more hyaline apical part of wings appearing distinctly more subopaquely whitish.
- 47. (a) Hair above predominantly whitish or sericeous whitish and thus scarcely tinted more yellowish than that on body below, only that on sides of abdomen posteriorly sometimes tinted more yellowish; that on disc of thorax distinctly more shaggy, with a less shorn-off appearance, the fine black ones on disc more obvious and sometimes also with intermixed black ones on scutellum; black hairs on sides of abdomen longer, sparser, less tuft-like; wings (text-fig. 76) with the hyaline apical part more subopaquely whitish in certain lights and with the brownish infusion along lower vein of discoidal

- cell also present along apical cross vein of the cell and along the veins separating second and third and third and fourth posterior cells. . .  $3 \circ g$  grisealis n. sp. (p. 244)
- (b) Hair above gleaming distinctly more straw-coloured yellowish or greyish yellowish, distinctly contrasting with the whiter ones on body below; that on disc of thorax distinctly shorter, with a much more distinct shorn-off appearance, with more yellowish intermixed hairs and with fine, short, blackish brown ones present only on sides of thorax discally and without any black hairs on scutellum; black hairs on sides of abdomen comparatively shorter, much denser, in form of more distinct dense tufts; wings (text-fig. 77) with the hyaline apical part appearing less whitish and with the brownish infusion along lower vein of discoidal cell not continued along apical cross vein of that cell and along vein between second and third posterior cells.

3 crossodesma n. sp. (p. 245)

- 48. (a) Infuscation in wings in both sexes more or less dimidiate, occupying the base, costal cell, basal parts or halves of marginal and first submarginal cells, entire or greater part of first basal cell and sometimes also second basal cell and which is usually emphasized as spot-like infusions on apical cross veins of basal cells even if infusion is not present in basal part of first submarginal and second basal cells; basal comb usually more strongly developed; first posterior cell more often markedly narrowed apically and sub-spindle-shaped, more frequently shorter or very much shorter than discoidal cell and, if longer, infusion is dimidiate; alula rarely not comparatively more developed, broader, its lobe at base of axillary lobe usually broader, more conspicuous.
- 49. (a) Wings less extensively infuscated longitudinally, with the base, costal cell, basal parts or bases of marginal and first submarginal cells, greater part of first basal cell, second basal cell and bases of discoidal and fourth posterior cells infused or tinted pale yellowish brownish, this infusion thus occupying more or less anterior basal half of wings; first posterior cell distinctly much longer than discoidal cell, the latter rectangularly truncate apically, its apical vein straight and very oblique to hind margin; hair above and below predominantly and conspicuously snow-whitish or sericeous whitish, the only dark hairs being the blackish ones on basal half of frons, some on antennae below and the black tufts on sides of tergites 4 (or 5)-7 (or 8).
  - (b) Wings more extensively infuscated longitudinally, at least or more than basal halves of marginal and first submarginal cells, entire first basal cell being infuscated brownish, the bases of discoidal and fourth posterior cells being less darkly tinged than costal half, or even clear and the infusion more or less confined dimidiately to anterior half; first posterior cell subequal to, or shorter than, discoidal cell, the latter subacute or acute apically, its apical vein slightly sinuous and subparallel or less oblique to hind border; hair not entirely snow-whitish above and below and, if whitish, there are black hairs on antennae below and more extensive black ones or tufts on sides of abdomen.
- 50. (a) Wings broader, not appearing as if stalked, the axillary lobe longer, much broader, more normally rounded posteriorly and the anal cell shorter, much broader; upper branch of cubital fork usually without a distinct appendix basally; first posterior cell more sub-spindle-shaped, more narrowed apically; mesopleural tuft entirely pale and thorax and scutellum above and sides of tergite 2 without intermixed black hairs and, if rarely with black hairs, wing-characters conform; transverse bands of pale or brassy scaling across hind margins of tergites narrower, even more so in 33. . . . 51

- (b) Wings narrower, appearing as if stalked, due to a markedly narrow and shortish axillary lobe which is almost straight along its hind margin and a markedly narrow and long anal cell; base of upper branch of cubital fork with a distinct appendix; first posterior cell not sub-spindle-shaped, but sub-parallel-sided and more broadly open; mesopleural tuft, thorax and scutellum above with intermixed black hairs and hairs on lower part of sides of tergite 2, those densely intermixed on sides of 3-7 (or 8) and prealar, postalar and scutellar bristles black; transverse bands of pale or brassy scaling across hind margins of tergites, even in 3, broader. . 3 pedunculata n. sp. (p. 258)
- 51. (a) Hair on body above gleaming distinctly deeper yellowish to deep golden; wings, apart from the slightly less darkly infuscated anterior half, more greyish or greyish translucent, the alula more reduced, its lobe narrower and smaller and axillary lobe more narrowed at base.
  - (b) Hair above paler, predominantly more whitish, straw-coloured to creamy yellowish; wings with the infuscated anterior half appearing darker, the uninfuscated apical and hinder parts distinctly more hyaline, the alula broader, its lobe at base of axillary lobe distinctly broader, more rounded and more developed and the axillary lobe also broader, more rounded at base.
- 52. (a) Head with more black hairs in front and down sides of frons and with much denser black hairs on antennae below; three or four prealar bristles black; palps subequal to or shorter than, or not much longer than, antennal joint 3; wings with the alular lobe distinctly less developed, the first posterior cell more narrowed apically, the anterior infuscated part of wings darker brownish, the base of first submarginal cell and to a certain extent second basal cell infused like rest of anterior part; interocular space in front of ocellar tubercle in 3 much narrower, only about as broad as front ocellus; smaller form, about  $6\frac{1}{2}$ -10 mm. long.
  - (b) Head with more pale hairs on frons in front and on sides and with fewer or without any black hairs on antennae below; prealar bristles pale; palps distinctly longer than antennal joint 3; wings with the alular lobe distinctly more developed, the first posterior cell less narrowed apically, the anterior infuscated part of wings more yellowish brown, the base of first submarginal cell and second basal cell clearer and not so infused as marginal cell; interocular space in front of tubercle in 33 much broader, broader than front occilus; slightly larger forms, about 11-13½ mm. long.
- 53. (a) Hair on frons in front, on antennae below and on genae whitish, but with some black ones on antennae below; hair on pleurae and venter whitish, contrasting much with the yellow hair above; black hairs on sides of tergites 3-7 (or 8) distinctly denser, more tuft-like; infuscated anterior part of wings more brownish; veins darker brownish; junction of apical vein of discoidal cell with first posterior cell more or less opposite that of base of vein between submarginal cells; palps only about as long as antennal joint 3; tibiae tending to be paler, more yellowish or reddish brown.
  - ♂♀ salticola n. sp. (p. 248)
- 54. (a) Infuscated part in wings more extensive and more uniform, the base, costal cell, at least basal halves of marginal and first submarginal cells and entire first basal cell yellowish brownish to chocolate brownish, the second basal cell sometimes also showing some cloudiness; first posterior cell distinctly more markedly narrowed apically, sub-spindle-shaped and shorter or much shorter than discoidal cell; middle cross vein thus nearer apex of discoidal cell; proboscis without fine hairs below; interocular space in front of tubercle in 33, though as broad as front ocellus, relatively wider or the narrow part much shorter and only subequal to length of tubercle.
  - (b) Infuscation in wings appearing more broken up, only the base, costal cell, basal half of marginal cell and entire first basal cell brownish, the first submarginal cell in 3

entirely hyaline and second basal cell also clear and hyaline; first posterior cell less markedly narrowed apically, subequal in length to discoidal cell; middle cross vein thus farther away from apex of latter cell; proboscis with fine hairs below; interocular space in front of tubercle in & very narrow, subcontiguous for a distance at least 1½ times as long as tubercle. . . . & & stenometopa n. sp. (p. 257)

- 55. (a) Antennal joint 3 more club-like, broadened basally and then rapidly narrowed apically, more so on lower side, its apical part very slender; labella of proboscis elongate, distinctly much longer than antennal joint 3; infuscation in wings more yellowish brownish; first posterior cell much broader, very much shorter than discoidal cell; axillary lobe slightly narrower, more regularly arcuate; hair on thorax and abdomen above, even if whitish, with much straw-coloured or yellowish ones as well and, if snow-whitish below and on pleurae, with some yellowish bristles on mesopleurae, otherwise more creamy below; interocular space in front of tubercle in 33 a little broader than front ocellus; middle and hind femora with more spines below.
  - (b) Antennal joint 3 distinctly more elongate-conical, tapering gradually apically, the apical part however still thick, not slender; labella markedly short, ovate, much shorter than antennal joint 3; infuscated part in wings slightly darker, more blackish brown; first posterior cell much narrower, only a little shorter than discoidal cell; axillary lobe distinctly broader, its hind margin more roundly curved; hair on body above more uniformly whitish and that below snow-whitish; interocular space in front of tubercle in 3, at narrowest part, only about as broad as front ocellus; middle and hind femora with much fewer spines.
- 56. (a) Hair on antennae below without any tuft of dense black ones; that on thorax and scutellum above and on sides of abdomen, especially in apical half, more straw-coloured yellowish, sericeous yellowish to creamy, distinctly contrasting with the more whitish hair on pleurae, sides of abdomen basally and on venter; thorax without any intermixed black hairs or bristles in front or on sides or on scutellum; prealar and postalar bristles all yellowish; hair in metanotal tuft whitish; bristles in hinder part of mesopleural tuft pale like rest of hair in tuft; black hairs or tufts on sides of abdomen usually less conspicuous and sparse in some 33; scaling across hind margins of tergites paler, more sericeous yellowish; infusion in wings usually slightly paler, more yellowish brownish, with a tendency for basal half of first submarginal cell to be slightly clearer than rest of dark part; basal joint of front tarsi in \$\triangle\$ without very long, bristle-like spinules below.
  - (b) Hair on antennae below with a very conspicuous and dense black tuft; that on thorax above, especially antero-laterally, and the pale ones on sides of abdomen much whiter, predominantly sericeous whitish, not contrasting much with the white hair on body below; thorax with distinct, conspicuous, intermixed, black hairs and bristles in front, antero-laterally, on sides and on scutellum; prealar, postalar and bristles in metanotal tuft black; bristles in hinder part of mesopleural tuft with distinct, intermixed, reddish or reddish golden ones and with reddish golden hairs on disc of thorax and scutellum and even with intermixed yellowish ones among the whitish ones on rest of thorax; black tufts on sides of tergites 2–7 (or 8) denser, more conspicuous; scaling across hind margins of tergites deeper golden or reddish golden, markedly contrasting with the whitish hair; infusion in wings (text-fig. 83) slightly darker, more coffee- or chocolate-brownish, the infuscated basal part of first submarginal cell more uniform with rest of infusion; basal joint of front tarsi in \$\triangle\$ with distinct, longish, conspicuous, bristle-like spinules below.
- 57. (a) Thorax and scutellum above with sparse or numerous, intermixed, black hairs or bristly hairs; prealar, postalar and scutellar bristles always black. . . . 58
- 58. (a) Hair on the whole denser, that on pleurae, on mesopleuron, on sides of tergite 1 and on venter distinctly tinted more yellowish, sericeous yellowish to golden yellowish and that on body above also deeper yellowish; wings with the base, costal cell and basal

part or half of first basal cell in 33 and the base, costal cell, base or basal half of marginal cell and entire, or greater part of, first basal cell in 99 more distinctly infused with yellowish or brownish or even dark brownish.

- (b) Hair on the whole sparser, that on pleurae, mesopleuron, on sides of tergite 1 and on venter distinctly paler, gleaming more contrastingly whitish, that in mesopleural tuft in front of wing-bases and on sides of tergite 1 conspicuously whitish or pale in certain lights and that on body above, where pale, also tending to be paler, less golden yellowish; wings with only the base, costal cell and extreme base of first basal cell tinged slightly subopaquely yellowish whitish or yellowish in both sexes.
- 59. (a) Larger forms, about 7-8½ mm. long, with a wing-length of about 7½-9 mm.; wings relatively broader, more glassy hyaline, the membrane much smoother and with the microtrichial fringe along hind border less developed, less conspicuous; alula broader; first posterior cell broader, usually subequal to or even shorter than discoidal cell; anal cell normally open apically, but distinctly narrowed apically; middle cross vein nearer apex of discoidal cell; hair comparatively shorter, that on thorax above less shaggy and that on sides of abdomen also shorter in relation to body; sides of face and genae with more pale hairs; black hairs on sides of abdomen distinctly very much denser, more conspicuous and in form of a very dense blackish fringe on each side below the pale ones; pale hair on body above paler yellowish, sometimes becoming more whitish on sides of abdomen, that on pleurae and venter tending to be pale sericeous yellowish to even whitish on venter; antennal joint 3 more onion-shaped at base, its slender apical part thus longer.
  - (b) Smaller form, about  $4\frac{1}{2}$ -6 mm. long, with a wing-length of about  $4\frac{1}{2}$ -6 mm.; wings relatively and markedly narrower, more distinctly greyish, the membrane distinctly crinkled or wrinkled in appearance and the microtrichial fringe along hind border more developed, more conspicuous; alula vestigial; first posterior cell narrow, elongate, visibly longer than discoidal cell; anal cell very broadly open and more or less equally broad throughout; middle cross vein farther from apex of discoidal cell; hair comparatively longer, distinctly more shaggy, that on thorax and especially on sides of abdomen distinctly longer and more shaggy in relation to body; sides of face, genae and antennae below with entirely or predominantly black hair; black hairs on sides of abdomen distinctly much sparser, less conspicuously tufty, not in form of a very dense, compact fringe below the pale hairs; pale hair on body above deeper yellowish, glearning deeper golden to orange yellowish, that on pleurae and venter also deeper yellowish, scarcely paler than that on body above; antennal joint 3 more gradually narrowed apically from broad base, less onion-shaped at base, its slender apical part thus appearing shorter. 3 \$\times stenoptera n. sp. (p. 259)
- 60. (a) Patch of silvery whitish hair on frons in front less extensive, the black ones on basal part of frons also extending on each side anteriorly to level of antennae, thus enclosing white patch; hairs on outer lower aspect of antennal joint 1 whitish and those along sides of genae entirely or predominantly blackish; thorax and scutellum above with distinctly sparser and fewer intermixed black hairs; pale hair on abdomen above tending to be paler, more straw-coloured; black hair on sides of tergites 2-7 (or 8) very dense, compact and conspicuous throughout; pale hair on venter more whitish; bands of deep golden, hair-like scaling across hind margins of tergites very narrow, confined to hind margins; discoidal cell more acute apically, its apical vein more subparallel to hind margin of wings; middle cross vein at a little less than apical fourth of discoidal cell; apical cross veins of basal cells with faint indications of infuscations.

  3 \( \text{\$\text{\$\text{\$\text{\$thysanomela n. sp. (p. 261)}}} \)
  - (b) Silvery patch on front part of frons larger, more extensive, due to the black hairs at base not extending anteriorly on each side to the same extent; hairs on lower outer aspect of antennal joint 1 yellowish or yellowish brown and those along sides of genae predominantly yellowish; thorax and scuttellum above with more numerous, denser, more conspicuous, intermixed, black hairs; pale hair on abdomen above more sericeous yellowish or yellowish; black hair on sides of tergites apparently less dense, less conspicuous and also sparser on sides of 2 and 3; pale hair on venter tinted more

- 61. (a) Femora paler brownish and tibiae even tending to be conspicuously yellowish; silvery whitish patch on frons in front more extensive, more conspicuous; inner lower aspect of antennal joint 1 with fewer, intermixed, black hairs; hair on sides of face and down genae entirely very pale, sericeous whitish to silvery whitish; that in mesopleural tuft and on sides of tergite 1 more conspicuously whitish or sericeous whitish; thorax above with comparatively fewer, intermixed, black hairs; axillary lobe and alula relatively broader, more developed, the base of wings thus apparently broader; veins more yellowish brownish to brown.
  - (b) Femora very dark brownish or blackish brown and tibiae, if slightly paler, also darker, not pale yellowish brownish; whitish or pale patch on frons in front less conspicuous; inner lower aspect of antennal joint I with predominantly or entirely black hair; hair on sides of face and down genae with more numerous dark ones, sometimes even entirely dark and, if with pale ones, these are more yellowish; hair on pleurae and sides of tergite I, though also whitish, less conspicuously evident as whitish tufts; thorax above with distinctly more numerous black hairs; axillary lobe and also alula distinctly narrower, more reduced, the base of wings thus apparently narrower; veins darker, more blackish brown.
- 62. (a) Pale hairs on frons in front gleaming more sericeous yellowish or straw-coloured yellowish, distinctly less extensive, occupying only extreme front part; hair on sides of face and down genae predominantly pale, sericeous yellowish; bristly hairs on thorax above comparatively sparser, predominantly blackish; erect bristly hairs on tergites 4–8 above predominantly black; hair on pleurae, sides of tergite 1 and on sides of venter below gleaming more sericeous yellowish than whitish; transverse bands of scaling on abdomen above more conspicuous, gleaming deep golden yellowish; antennal joint 3 golf-driver-club-shaped at base, more rapidly broadened basally below; alula and axillary lobe very much reduced, the apical lobe of former at base of latter wanting and the axillary lobe very narrow, much reduced, almost equally broad throughout; interocular space in 3, at narrowest part in front of ocellar tubercle, broader, nearly as broad as tubercle or broader than length of antennal joint 2.

3 berzeliaphila n. sp. (p. 264)

(b) Pale hairs on frons in front gleaming more silvery or sericeous whitish, distinctly more extensive, occupying at least front half of frons; hair on sides of face and down genae predominantly or entirely black; bristly hairs on thorax denser, composed of intermixed black ones and more numerous sericeous yellowish ones; erect hairs on abdomen discally above predominantly pale, gleaming sericeous whitish to sericeous yellowish, a few dark ones being present only on last tergite above; hair on pleurae, sides of tergite 1 and sides of venter below gleaming more whitish than yellowish; transverse bands of scaling across tergites less conspicuous, gleaming paler sericeous yellowish; antennal joint 3 more gradually broadened basally below, not golf-driver-club-shaped at base; alula and axillary lobe more developed, the apical lobe of former small but distinct and the latter very much broader, distinctly more arcuately lobe-like; interocular space in 3, at narrowest part, much narrower than tubercle, only a little broader than front occllus or subequal to length of antennal joint 2.

& hylesina n. sp. (p. 265)

63. (a) Hair above predominantly more straw-coloured yellowish, sericeous yellowish to golden yellowish, that below rarely whitish and that across extreme anterior margin of thorax in collar not very dark or black; wings with the base, alula, entire costal cell and basal part, or sometimes entire, first basal cell in ♂♂ and in addition the greater part or entire first basal cell and sometimes even base or basal halves of marginal and first submarginal cells in ♀♀ tinged subopaquely yellowish, yellowish brownish to even dark brownish; spicules on tibiae distinctly more strongly developed; basal joint

of front tarsi in most of the known QQ with distinct, longish, bristle-like spicules below; slightly larger forms, about 6-12 mm. long, with a wing-length of about 6-11 $\frac{1}{2}$  mm.

- (b) Hair above and below predominantly or entirely snow-whitish or gleaming sericeous whitish and that across extreme front part of collar sometimes black or dark in ♂♂ and in some ♀♀; wings with the base, alula, basal part of costal cell up to cross vein and part of costal cell posterior to false vein in ♂♂ and in addition entire costal cell and sometimes also anterior basal part of first basal cell in ♀♀ subopaquely whitish, yellowish whitish to pale yellowish, rarely with the entire costal cell tinged in ♂♂ and, if so, black or dark collar hairs are present; spicules on tibiae less strongly developed; basal joint of front tarsi in known ♀♀ without any, or with much shorter, bristly spicules below; mostly small species, usually about 5-7½ mm. long, with a wing-length of about 5½-8 mm.
- - (b) Hair either not predominantly or entirely golden yellowish and, if gleaming deep golden yellowish, that on front part of frons gleaming more sericeous or silvery whitish; antennae with black hairs either above or below; abdomen usually with more conspicuous, denser and more extensive black hairs on sides, usually present on at least sides of tergites 2-7 (or 8); scaling on abdomen above always with some fine, dark or black scales intermixed with the pale ones or those discally between the concentrated pale bands on tergites black; scaling on legs usually more whitish, greyish whitish or greyish yellowish and less conspicuously yellowish.
- - (b) Wings rather narrowish, first posterior cell long and narrow, much longer than discoidal cell; anal cell almost equally broad throughout; axillary lobe much reduced and narrow; alula very much reduced; silvery tuft on frons anteriorly markedly short, much less extensive, in form of a small circumscribed tuft, the blackish hairs on sides of frons in 3 longer than silvery ones; hairs on antennae above and below, on sides of face and genae predominantly black, only a few pale ones being present.

& jansei n. sp. (p. 277)

- 66. (a) Hair on body above deep golden yellowish, reddish fulvous to deep orange fulvous in different lights, that on antennae below, on face, body below (except basally on venter) and on squamae scarcely paler, also deep yellowish or golden; antennae without any black hairs below; black hairs on sides of abdomen distinctly fewer, less dense and inconspicuous; scaling across hind margins of tergites deeper golden yellowish; axillary lobe rather broadish, much broader than anal cell, its hind margin more strongly curved.
  - (b) Hair on body above much paler to very much paler yellowish or golden to even straw-coloured yellowish or even more whitish, the pale ones on antennae below, on face, body below and squamal fringe distinctly paler, more whitish, sericeous or yellowish white or white; antennae usually with a few, numerous or even dense black hairs below and, if without any black ones, hair on body below more whitish and that above

- not deep fulvous or golden; black hairs on sides of abdomen, even if confined posteriorly, more numerous, denser and more conspicuous; scaling on abdomen above paler, more brassy or whitish; axillary lobe tending to be relatively narrower, its hind margin more regularly curved.
- 67. (a) Hair on body above predominantly sericeous whitish or straw-coloured, that on antennae below, face and body below snow-whitish or white; wings, even in 3, with the entire first basal cell and even extreme base of first posterior cell and at least basal half of marginal cell brownish like costal cell and base; apical cross veins of basal cells with distinct spot-like infusions; alula distinctly more developed, broader, more lobe-like; proboscis with some fine hairs below; middle femora with relatively denser white hairs below; interocular space in 3 in front of ocellar tubercle very narrow, subcontiguous, or only as broad as narrow front ocellus, this narrow part markedly long, quite 1½ times length of narrow tubercle. . . 3 stenometopa n. sp. (p. 257)
  - (b) Hair on body above less whitish, distinctly more yellowish, sericeous yellowish to pale yellowish or even lemon yellowish, that on body below either slightly paler than above or, if white, the white contrasts with that on body above and that on antennae below sometimes more sericeous yellowish or with black ones; wings in 33 less infuscated, the apical part or half of first basal cell not infuscated and infuscation at base of marginal cell less distinct; apical cross veins without any or with fainter and less distinct spot-like infuscations; alula distinctly more reduced, narrower; proboscis without distinct fine hairs below; middle femora with sparser whitish hairs below; interocular space in 33 usually distinctly or much broader than front ocellus and, if appearing narrow, the narrow part is much shorter, only subequal in length to ocellar tubercle.
- 68. (a) First posterior cell distinctly shorter, markedly shorter than discoidal cell, also much shorter than fourth posterior cell, more sub-spindle-shaped, distinctly more narrowed apically and there considerably narrower than apex of third posterior cell (scarcely or even less than half of latter); apical cross vein of discoidal cell distinctly longer, more distinctly sinuous; apical margin of second posterior cell only a little more than 1½ times length of base of this cell; pale hairs on frons in front, on antennae below and on sides of face distinctly more sericeous yellowish or yellowish, either without any or with fewer or with a smaller tuft of black hairs on antennae below; hair on body above on the whole more lemon or greenish yellow; slightly larger species, about 10−11½ mm. long, with a wing-length of about 10−11½ mm.
  - (b) First posterior cell distinctly longer, only a little or not very markedly shorter than discoidal cell, subequal in length or only a little shorter than fourth posterior cell, distinctly less narrowed apically, sometimes tending to be sub-parallel-sided, its apex only a little narrower than apex of third posterior cell (not less, usually more or much more than half apical part of latter); apical cross vein of discoidal cell usually shorter, straight or straighter and, if long and sinuous, other characters at least conform; apical margin of second posterior cell usually much more than 1½ times length of its base; pale hairs on frons, antennae below and sides of face usually strikingly white or sericeous whitish and usually with more or a denser tuft of black hairs on antennae below; hair on body above either more sericeous yellowish, straw-coloured yellowish or deeper yellowish to golden yellowish; usually slightly smaller forms, usually less than 10 mm. long, with a wing-length of less than 11 mm.
- - (b) Palps distinctly much shorter, not longer than antennal joints 2 and 3 combined, less than 1 mm. long; proboscis without any or with only very fine and inconspicuous spinules below; interocular space in front of tubercle in ♂♂ slightly narrower, about as broad as or slightly narrower than front part of tubercle, on vertex in ♀♀ only about 2 times width of tubercle; apex of discoidal cell more obtuse or even subtruncate or

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truncate and, if acute, other characters conform, its apical vein shorter and straight or straighter; hair on antennae below with more numerous or even dense black hairs in both sexes.

- 70. (a) Black hairs on antennae below usually denser, more conspicuous; hair on pleurae and body below scarcely or only slightly paler than that above; black hair on sides of abdomen, especially posteriorly, in form of more conspicuous and much denser tufts; wings tending to be more greyishly hyaline and in some φφ with the base, alula, costal cell, basal parts of marginal and first submarginal cells to a variable extent and entire first basal cell more darkly or more extensively tinged; proboscis with distinctly visible spinules below; basal joint of front tarsi in φφ with comparatively longer, more conspicuous, bristle-like spicules below, the longest of which are quite or nearly as long as second tarsal joint.
- 71. (a) Two or three black prealar bristles present; bristly hairs on lower inner aspect of antennae predominantly or entirely black, the hairs on sides of antennae and face more whitish; sides of abdomen with relatively denser black hairs or tufts; wings tending to be more greyishly hyaline and anterior costal infusion, especially in \$\mathbb{Q}\$, darker, more conspicuous; first posterior cell tending to be less parallel-sided.

♂ ♀ pulchriceps Lw. and forms (p. 273)

- 72. (a) Hair on sides of antennae below, face and genae gleaming sericeous whitish or silvery whitish like that on frons anteriorly; black hair on sides of abdomen denser, more conspicuous; proboscis longer, about 2·4-3 mm.; interocular space in front of ocellar tubercle in 3 distinctly broader, very much broader than front ocellus, even slightly broader than length of antennal joint 2; alular lobe at base of axillary lobe very small, vestigial, narrower than apical parts of knobs of halteres; axillary lobe also narrower basally.

  3 pulchriceps var. ogilviei n. (p. 276)
  - (b) Hair on sides of antennae below, sides of face and genae more sericeous yellowish to yellowish or at least distinctly tinted more yellowish than silvery patch on frons in front; black hair on sides of abdomen sparser, less conspicuous; proboscis shorter, about 1.8-2.4 mm.; interocular space in front of tubercle in 33 distinctly narrower, only about as broad as, or a little broader than, front occllus, narrower than length of antennal joint 2; alular lobe at base of axillary lobe distinct and quite as broad as apical part of knobs of halteres; axillary lobe itself also slightly broader basally.
- 73. (a) First basal cell in wings in 3 only slightly yellowish at base and to a certain extent also the costal cell yellowish; first posterior cell rather broadish apically, not markedly narrowed; proboscis slightly stouter and shorter; interocular space in front of ocellar tubercle in 3 distinctly narrower than length of antennal joint 2; pale hair on frons in front gleaming distinctly more silvery whitish; antennae with fewer or without any black hairs below; sides of abdomen with apparently fewer and sparser black hairs.

  \$\mathscr{C}\$\text{ oreoica n. sp. (p. 278)}\$
  - (b) First basal cell in 3 entirely subopaquely yellowish like the base and costal cell; first posterior cell more distinctly and more markedly narrowed apically; proboscis slightly more slender and longer; interocular space in front of tubercle in 3 slightly broader,

subequal to length of antennal joint 2; pale hair on frons gleaming slightly more sericeous yellowish; antennae with more numerous black hairs below; sides of abdomen with distinctly more numerous black hairs.

3 var. of oreoica n. sp. (p. 280)

- 74. (a) Hair on greater part of frons, antennae below (sometimes also above), sides of face and genae entirely sericeous whitish; black hairs on sides of abdomen reduced, either entirely absent or present only on tergites 5-7 (or 8) or on last tergite; collar without any distinct dark hairs.
- 75. (a) Antennal joint 3 distinctly more rapidly broadened and bulging basally below, more golf-driver-club-shaped at base; frons, especially in φφ, distinctly and normally depressed anteriorly; interocular space on vertex in φφ only about, or slightly less than, twice distance between outer margins of hind ocelli; axillary lobe broader, markedly obtusely rounded; abdomen either with more numerous black hairs on last tergite or with black ones also on sides of tergites 5–7 (or 8); tibiae darker, scarcely or not much paler than femora; basal joint of front tarsi in φφ without any longish, bristly spicules below.
- 76. (a) Interocular space in front of ocellar tubercle in ♂ narrower, as broad as small front ocellus; space on vertex in ♀ also narrower, scarcely twice width of tubercle; proboscis more slender, relatively longer; hairs on antennae above pale; prealar bristles pale; black hairs on abdomen confined to last tergite and hairs on sides of tergites mostly whitish; first posterior cell relatively narrower, more narrowed in ♂ at least, longer than discoidal cell; second posterior cell broader apically, much broader than third.

  ♂ ♀ albata Hesse (p. 268)
  - (b) Interocular space in ♂ broader, at least 1½-2 times width of front ocellus; space on vertex in ♀ broader, a little more than twice width of tubercle; proboscis stouter, relatively shorter; hairs on antennae above black; prealar bristles black; black hairs on abdomen also present on sides of tergites 5-7 (or 8) and hairs on sides of tergites 2-4 in ♂ yellowish; first posterior cell relatively broader and subequal in length to discoidal cell; second posterior cell narrower apically, only a little broader or as broad as third.
    ♂ ♀ mozambica n. sp. (p. 269)
- - (b) Hair on thorax antero-laterally and on sides of abdomen gleaming more straw-coloured; prealar, postalar and scutellar bristles more pale sericeous yellowish; last tergite with some distinct black hairs; frons at broadest part, just above level of antennae, relatively broader, quite 2⅓ times as broad as length of antennal joint 3 and hairs on frons anteriorly apparently shorter and sparser; tibiae slightly paler, more yellowish; slightly larger form, about 7½ mm. long, with a wing-length of about 8 mm.
    9 var. of leucochlaena n. sp. (p. 270)
- 78. (a) Antennal joint 3 more golf-driver-club-shaped at base, its lower basal part more produced or bulging; from not distinctly impressed anteriorly; labellar lobes of

proboscis very short, ovoid and broad; white hair on sides of abdomen dense, hiding the shorter and denser, black, bristly hairs on sides of tergites 2–7 (or 8); basal joint of front tarsi in  $\varphi$  with very fine, dense and short, brush-like spicules below.

 $3 \circ albulata$  n. sp. (p. 271)

- - (b) Interocular space in front of tubercle in ♂ distinctly slightly broader than front ocellus, quite as broad as length of antennal joint 2; frons in ♂ at least more feebly depressed anteriorly; antennal joint 3 tending to be more rapidly bulb-like basally; antennae below entirely or with more numerous and denser black hairs in ♂ at least; wings with the base, alula, entire costal cell and even along anterior bala part of first basal cell opaquely yellowish; first posterior cell slightly, but distinctly, more narrowed apically; discoidal cell distinctly more acute and pointed apically; tibiae, especially hind ones, with more strongly developed spicules. . . ♂ bembesiana n. sp. (p. 273)
- 80. (a) Wings much more extensively and more darkly infuscated, the infusion either like that of Anthrax, in form of a dark, smoky brownish, blackish brown or coffee-brownish infusion, occupying anterior costal half and with large, conspicuous, rounded, often coalescent, spots or infusions on cross veins and at bases of other veins, or in form of an infusion occupying base, alula, costal cell, basal parts or more than basal halves of marginal and first submarginal cells, greater part or entire first basal cell and sometimes also second basal cell and discoidal cells, intensified on cross veins by distinct, though smaller, spot-like infusions; knobs of halteres usually more pale yellowish brownish; pale hair on sides of tergites 1−2, or 1−3, or 1−4, even if whitish, not in form of a characteristic, conspicuous, dense, silvery white patch or tuft conspicuously contrasting with dark tufts on rest of tergites; hair in ♀♀ usually not differing much from that of ♂♂.
- 81. (a) Wings (text-figs. 49 and 51) with an extensive smoky brownish to chocolate-brownish infuscation in form of a more or less uniform infusion in anterior costal half and large rounded spots or infusions on cross veins and other veins, some of these spots either coalescing with the anterior infuscation, or the latter extends band-like across wings to include some of these spots; first posterior cell distinctly narrowed apically, spindle-shaped, either subequal in length to, or shorter than, discoidal cell; antennal joint 3 more gradually broadened basally below, more club-shaped or leek-shaped at base, the

- lower basal part not produced or prominently bulging; black hairs or tufts present on sides of tergites 2-7 (or 8); legs predominantly or entirely pale yellowish red. . 82
- (b) Wings with the smoky brownish or blackish brown infuscation in form of an infusion in anterior half, occupying base, alula, costal cell, more than basal halves of marginal and first submarginal cells, entire first basal cell and sometimes also second basal and discoidal cells, the rest of wings being greyish hyaline and the anterior darker part usually merging into less-tinged parts and emphasized along cross veins and bases of other veins as much smaller, spot-like infuscations; first posterior cell not, or scarcely, narrowed apically, more parallel- or sub-parallel-sided, distinctly longer than discoidal cell; antennal joint 3 more rapidly broadened basally below, more golf-driver-clubshaped at base, the lower basal part produced or prominently bulging; black hairs or tufts present only on sides of tergites 4 or 5-7 (or 8); legs predominantly dark and, if tibiae are paler than femora, they are not yellowish reddish.
- 82. (a) Wings (text-fig. 49) infuscated and spotted like those of Anthrax, the base, alula, costal cell, greater part of marginal cell, basal half of first submarginal cell, entire first basal cell, greater part of second basal cell and to a lesser extent anal and axillary cells being dark blackish brown and with large, conspicuous and rounded spots or infusions on cross veins, at bases of veins between submarginal cells, between discoidal and third posterior cells and at apex of anal cell, these spots being confluent with the anterior infusion or with each other to a variable extent; first posterior cell shorter than discoidal cell; antennae with black hairs above and with some or numerous intermixed black ones below; thorax with numerous dark or black hairs intermixed above and with the prealar, postalar and scutellar bristles black; sides of abdomen with more extensive black hair; scaling above deep brownish or reddish golden; antennal joint 3 more club-shaped or leek-shaped at base; basal joint of front tarsi in  $\varphi$  with a few longish, bristly spicules below.
  - (b) Wings (text-fig. 51) not spotted to the same extent, with a dull smoky brownish infusion, occupying anterior costal half and extending broadly band-like across wings from apex of costal cell to fourth posterior cell, leaving the second basal cell, bases of discoidal and fourth posterior cells, greater part of anal and axillary cells and apical part of wings hyaline, but with smaller, rounded spots on the cross veins and at bases of veins between submarginal cells and between discoidal and third posterior cells; first posterior cell tending to be subequal in length to discoidal cell; antennae with sericeous whitish hair above and below like rest of hair on head in front; thorax without any dark hairs above and with the prealar, postalar and scutellar bristles whitish; sides of abdomen with less extensive black hairs; pale scaling above more pale sericeous yellowish to whitish; antennal joint 3 more bull-shaped at base and thus slightly broader; basal joint of front tarsi in ♀ without any longish, bristly spicules below.

Quniplaga n. sp. (p. 202)

- - (b) Wings more diffusely infuscated, with the anterior half, comprising base, alula, costal cell, slightly more than basal halves of marginal and first submarginal cells and entire first basal cell tinged brownish in φφ, the second basal and discoidal cells less tinged than anterior part, this anterior infusion less contrasting with the less-tinged apical and hinder parts, with the spot-like infusions on cross veins and bases of other veins smaller and less conspicuous and with the infusion in wings of known 33 fainter than in φφ; middle cross vein at distinctly more than apical fifth of discoidal cell; hair on thorax above and antero-laterally and on sides of abdomen more whitish or straw-coloured or even sericeous whitish in both sexes; basal joint of front tarsi in φφ without any longish, bristly spicules below or with only a few apically below.

- 84. (a) Brownish infusion in anterior part of wings distinctly more diffuse, imperceptibly merging into less-tinged apical and hinder parts; second vein very much recurved and sinuous at end; antennal joint 3 slightly less rapidly broadened basally below, more bulb-shaped at base; hair on thorax antero-laterally more sericeous whitish and without any dark or black ones in collar in  $\mathfrak{P}$ .  $\mathfrak{P}$  sinuosa n. sp. (p. 205)
  - (b) Brownish infusion in anterior part of wings, appearing more confined to base, alula, costal cell, more than basal halves of marginal and first submarginal cells and entire first basal cell, slightly less diffusely merging into less-tinged or greyish apical and hinder parts; second vein normally bent up at its end; antennal joint 3 distinctly more rapidly broadened basally below, more golf-driver-club-shaped; hair on thorax antero-laterally in ♀♀ tinted slightly more straw-coloured yellowish, but sericeous whitish in known ♂, and with some distinct, dark or black collar hairs in both sexes.
- - (b) Slender part of antennal joint 3 relatively shorter, less than 3 times length of broadened base; frons scarcely or not depressed anteriorly; hair on sides of frons anteriorly with distinctly denser and more numerous black ones; antennae below with more numerous black hairs; tergite 1 in ♀ without any visible black hairs across hind margin; yellowish scaling on abdomen above less extensive and sparser and in narrower bands; squamae dirty yellowish whitish; legs more sienna brownish or blackish brown; basal joint of front tarsi in ♀ without any longish, bristly spicules below.

♀ natalicola n. sp. (p. 208)

- 86. (a) Antennal joint 3 more gradually broadened basally below, more leek-shaped at base, the lower basal part not prominently produced or bulging; hair on abdomen entirely gleaming snow-whitish, only a few dark ones present on last tergite; hair in mesopleural tuft and on sides of thorax tinted orange yellowish; wings markedly narrowish, the cells relatively narrow and the surface of wing-membrane distinctly wrinkled or crinkly in appearance. . 3 kalaharica n. sp. (Syn. = mitis Hesse, nec Lw.) (p. 285)
  - (b) Antennal joint 3 more rapidly broadened basally below, more bulb-shaped or golf-driver-club-shaped at base, the lower basal part more produced or prominently bulging; hair on sides of abdomen not entirely snow-whitish, that on sides of either tergites 1-2, or 1-3, or 1-4 in form of a dense, conspicuous, white or silvery white patch, conspicuously contrasting with the dark blackish brown or black tufts on sides of remaining tergites; wings normally broad, the cells also normally broad and the surface of the membrane less wrinkled in appearance.
- 87. (a) Sericeous or silvery white patch on sides of tergites uniform in colour, without any dark or black hairs being present on sides at base of tergite 1 or on sides or extreme sides of 2 and 3 and, if present on extreme sides below of latter two, all the white hair above more uniform and shaggy in appearance.
- 88. (a) Hair on frons, antennae above and below, genae, pleurae or lower parts of pleurae, on coxae and to a certain extent on sides of thorax above, or even on entire thorax above, predominantly very dark or black; that on head sometimes with a small tuft on sides of frons anteriorly just above antennae, a few intermixed hairs on lower aspect of

- antennal joint I and on sides of face or on sides of genae and sometimes a small tuft on inner aspect of antennal joint 1 gleaming silvery white. . . . . (b) Hair on all these sites not predominantly very dark or black, but with distinctly more, or with more extensive, pale hair on either one or other of these sites; that on head including distinctly more extensive or more numerous pale or gleaming whitish hairs and that on antennae below with more numerous, more conspicuous and more extensive silvery whitish hair. 89. (a) Hair on entire pleurae, antero-lateral and front half or greater part of thorax above entirely or predominantly black, there being no pale hair across front part of thorax above: hair on sides of face and upper part of genae with more intermixed whitish hairs; tuft on inner aspect of antennal joint I not very conspicuous as a silvery tuft; dark tufts on sides of tergites 4-8 appearing more black, not dark coffee-brownish; squamal fringe dark blackish brown; base of wings up to cross vein in costal cell and including alula darker, more brownish; veins tending to be more yellowish brown to & albicincta n. sp. (p. 287) brownish. (b) Hair on at least sides of thorax above in front of wing-bases, or sometimes even greater part of mesopleural tuft not entirely black, but pale or straw-coloured and that across front part of thorax also pale or straw-coloured; hair on genae entirely or predominantly black; tuft on upper inner aspect of antennal joint I conspicuous as a smallish silvery white one and usually also with a few intermixed whitish hairs on lower outer aspect of the joint: dark tufts on sides of tergites 4-8 appearing more coffee-brownish in certain lights; squamal fringe conspicuously snow-white; only extreme base of wings blackish, the greater part of base and alula being more subopaquely yellowish: veins tending to be paler, more yellowish. qo. (a) Mesopleural tuft straw-coloured yellowish or whitish; hair on lower part of pleurae and on pectus dark blackish brown or black; that on sides of thorax above predominantly or entirely whitish or straw-coloured like that across front part just behind blackish collar hairs. 3 nigrescens Ric. (p. 288) (b) Mesopleural tuft and hair on entire pleurae very dark purplish or blackish brown to black, there being no conspicuous and extensive pale hairs in mesopleural tuft, only the extreme upper part of the latter with straw-coloured hairs; hair on sides of thorax just above wings with distinct, intermixed, dark ones or even predominantly black and not so uniformly straw-coloured or whitish like that across front part of thorax. & nigrescens var. aterrima n. (p. 290) q1. (a) From anteriorly relatively narrower, its foveate depression less broad and less deep and the hairs on each side of it encroaching on depression, not leaving a broadish. more or less bare, medial part. (b) From anteriorly distinctly broader, its foveate depression broader, deeper, more distinct and hairs on each side of it not encroaching on it, leaving a much broader medial part . . 92. (a) Hair on greater part or entire frons sericeous whitish and relatively denser and that below antennae also entirely whitish or with only a few, intermixed, dark ones: hair in mesopleural tuft, sides of thorax in front of wings (excepting only black intermixed bristles) and most of sparse hairs on disc of thorax snow-white or sericeous whitish; hair on abdomen above sparser and pale and the white ones on sides basally confined to sides of tergites 1 and basal half of 2; pale scaling across hind margins of tergites. especially posteriorly, sparser, not conspicuous; squamal fringe white; antennal joint 3 distinctly less rapidly narrowed below from broad base, more ham-shaped. 3 arenaria n. sp. (p. 297) (b) Hair on frons slightly less dense, that basally black and that below antennae mainly

93. (a) Dense and conspicuous silvery white hair on abdomen present on sides of tergites 1-4; hair on sides of frons and on antennae below with more black ones or mainly black; prosternal part with more black hairs; pale scaling on abdomen above and on venter sparser, less developed; proboscis projecting slightly more beyond buccal cavity, its labella much longer, more sharply pointed apically.

3 nigrescens var. bulawayoënsis n. (p. 290)

- (b) Dense and conspicuous silvery white hair on abdomen present on sides of tergites 1-3 only; hair on sides of frons in anterior half and on antennae below entirely sericeous white; prosternal and propleural parts with fewer black hairs or entirely pale- or whitish-haired; pale scaling on abdomen, especially behind, denser, more conspicuous; proboscis only projecting a little beyond buccal cavity, its labella very much shorter, blunter apically.
- 94. (a) Hair on thorax above predominantly or entirely sericeous whitish or straw-coloured and without any black ones in collar or on propleural and prosternal parts; hair in mesopleural tuft whitish or pale sericeous, without any dark ones on coxae; dark tuft posteriorly on sides of abdomen more black, but with intermixed whitish hairs; squamal fringe white; apical part of second vein less recurved.

3 compsocoma n. sp. (p. 292)

- . (b) Hair on thorax above composed of a mixture of yellowish brownish, fulvous brownish and black or dark ones, with dark hairs in collar and on prosternal part; hair in mesopleural tuft fulvous brownish or golden brownish, intermixed with some dark ones and with dark hairs intermixed among brownish or fulvous ones on coxae, especially front ones; dark tufts posteriorly on sides of abdomen tinted dark coffee-brownish to chocolate-brownish; squamal fringe brownish; apical part of second vein more recurved.
- 95. (a) Hair on thorax composed of a mixture of yellowish brownish or fulvous brownish to golden brownish and black hairs above, brownish golden to fulvous ones in mesopleural tuft, on pleurae and coxae; from anteriorly more shallowly depressed and with the hair occupying almost entire or most of the anterior part.
  - (b) Hair on thorax either predominantly or entirely black above and below or black above and with much black hair on propleural and prosternal parts, or composed of intermixed white and black hairs above, sericeous whitish or straw-coloured yellowish ones in mesopleural tuft, on pleurae and coxae; frons anteriorly usually distinctly more deeply and foveately depressed, its hair sparser, narrowly confined to sides, the greater part of depression being bare and, if frons is not depressed and with denser hair, hair on thorax and pleurae entirely whitish or black, not fulvous brownish.
- 96. (a) Hair on greater part of frons, antennae above and below, sides of face and on genae gleaming entirely sericeous whitish; that on thorax, especially above, comparatively shorter and denser; sparse, fine, erect hairs on disc of abdomen black on tergite 1, predominantly sericeous whitish on 2 and 3 and part of 4 and black on 4-8; dark tufts on sides of tergites 4-8 tinted dark coffee to chocolate brownish; frons much broader anteriorly, very much broader than length of antennae; face less convex medially, less subconical from side; veins paler, yellowish or reddish brownish; legs paler, more sienna brownish or castaneous. . . . . & albizonata n. sp. (p. 294)
  - (b) Hair on frons anteriorly, on inner and outer sides of antennae, on sides of face and on genae sericeous whitish, that on antennae above and in a dense tuft below black; that on thorax above slightly longer, sparser, and that in mesopleural tuft also slightly longer; fine, erect hairs on abdomen above black; dark tufts on sides of tergites 4-8 black; frons distinctly narrower anteriorly, scarcely broader than length of antennae; face distinctly more convex medially, thus more conically prominent from side; veins dark blackish brown or black; legs darker, black. . . & plocamoleuca n. sp. (p. 296)
- 97. (a) Hair on entire frons or greater part of frons, on antennae, entire or greater part of thorax above and even on entire scutellum predominantly or entirely very dark or black; hairs on all the coxae or at least front, or front and middle, ones mostly dark or blackish; squamal fringe pale or dark; transverse bands of pale scaling across hind margins of tergites either less developed, not so pale or narrower and not resolved into

- very conspicuous, spot-like patches on sides; frons either relatively very much broader anteriorly or with the anterior foveate depression comparatively deeper. . 98
- (b) Hair on frons anteriorly and on antennae below predominantly whitish or with more numerous silvery whitish ones; that on pleurae, mesopleuron, thorax and scutellum above predominantly sericeous whitish or yellowish even though intermixed hairs and the thoracic and scutellar bristles are blackish; hairs on coxae predominantly pale or with more intermixed pale ones; squamal fringe always entirely sericeous whitish or very pale sericeous yellowish; transverse bands of pale scaling across hind margins of tergites more developed, more conspicuous, usually resolved into more conspicuous, spot-like patches on sides; frons with the anterior depression shallower.
- 98. (a) Hair on frons, antennae, face and genae, entire pleurae, greater part or entire thorax above and sometimes even entire scutellum predominantly or entirely very dark or black; hairs on all the coxae, or at least front and middle ones, predominantly dark or black; squamal fringe dark blackish brown or black; scaling across hind margins of tergites poorly developed, dark or, if pale or whitish, not conspicuous. 99
- 99. (a) White hair on sides of tergites 1-3 more uniform throughout, only a few more or less inconspicuous dark or black hairs being present on sides of tergite 1 basally below; some distinct intermixed whitish hairs present discally at base of thorax or on its sides basally or discally on scutellum; hair on sides of abdomen appearing longer, more shaggy; interocular space in front of ocellar tubercle, at narrowest part, relatively narrower, appearing narrower than front ocellus, the inner margins of eyes almost contiguous.
  - (b) White hair on sides of uergites 1-3 not uniformly white throughout, that on apical part of tergite 2 and that on basal part of 3 together forming a denser, more silvery whitish patch of decumbent hairs than the sparser white ones on tergite 1 and basal half of 2 which are flanked for the greater part below or on sides by numerous, dense and conspicuous black hairs, especially on sides of tergites 1 and 2; all the hairs on thorax and scutellum above entirely black; hair on sides of abdomen also tending to be shorter, denser, less shaggy; interocular space in front of tubercle relatively broader, either a little broader than front ocellus or, if appearing as broad, inner margins of eyes not subcontiguous.
- 100. (a) Proboscis shorter, stumpy and stoutish, more or less confined to buccal cavity, its labellar lobes broad, well developed, resembling two cupped hands when opened, about as long as, or even slightly longer than, base of proboscis; face not convex medially, merely sloping down to buccal cavity; from relatively much broader apically, about 1 mm. broad just above antennae or much broader than length of antennae, scarcely, or only very shallowly, depressed anteriorly; interocular space in front of tubercle narrower, the margins of eyes subcontiguous; antennal joint 3 more golf-driver-club-shaped at base; hair on antennae below entirely black; face with only a small, pale or whitish tuft on sides; erect hairs on abdomen above mainly whitish; hairs on coxae black; tibiae paler, more sienna brownish or reddish brown; discoidal cell more acute apically.
  - (b) Proboscis relatively longer, more slender, projecting distinctly beyond buccal cavity, its labellar lobes shorter, narrower and much shorter than basal part of proboscis; face more convex medially, its apical part more subconically prominent from side, the buccal cavity ending sharply in it; from much narrower across antennae, very much less than 1 mm. broad and subequal to length of antennae, deeply and foveately depressed anteriorly; interocular space, though narrow, slightly broader, as broad as front occllus; antennal joint 3 tending to be more bulb-shaped at base, its base below less bulging; hair on antennae below with some distinct whitish ones on sides; face

and upper part of genae with white hairs on sides; erect hairs on abdomen above predominantly black in posterior half; hairs on hind coxae at least whitish; tibiae much darker, as dark as femora; discoidal cell more truncate or subtruncate apically.

3 albicincta n. sp. (p. 287)

- - (b) Hair on sides of face entirely black like rest of hair on head in front; frons anteriorly with the foveate depression distinctly deeper, more pronounced; interocular space in front of tubercle, at narrowest part, only about as broad as front ocellus.

3 eremia n. sp. (p. 303)

- 102. (a) Proboscis short, stumpy, stoutish, tending to be confined to buccal cavity, its labellar lobes broadish, ovoid, resembling two cupped hands when opened, only a little shorter than stoutish base of proboscis; face not, or scarcely, convex medially, not subconically prominent apically; frons feebly, or scarcely, depressed anteriorly, its hair occupying most of anterior part; antennae without any or with fewer black hairs below; prosternal part without any black hairs, all the hairs being sericeous whitish like rest of hair on pleurae and coxae, though upper part of pleurae with only a few black ones; abdomen with sericeous whitish hair only on sides of tergites I and 2, that on I entirely whitish, but that on 2 with black ones as well; legs either predominantly yellowish or pale yellowish brown, or with at least tibiae and front femora yellowish; knobs of halteres tending to be pale yellowish brown above.

  3 melanoloma n. sp. (p. 196)
  - (b) Proboscis longer, more slender and, if short, not stumpy or stoutish, usually projecting beyond buccal cavity, its labellar lobes narrower, more elongate, pointed apically, very much shorter than basal part of proboscis; face convex medially, more raised or subconical apically, sometimes appearing markedly conical; frons distinctly more deeply and more foveately depressed in front, its hairs more narrowly confined to its sides; antennae with more numerous or distinct black tufts below; prosternal part usually with intermixed black hairs and with more numerous black ones on sides of thorax; abdomen with sericeous white hair on sides of tergites 1-2 or 1-3 and always with some black ones also on sides at base of tergite 1; legs much darker and, if tibiae tend to be paler, they are more sienna brownish, not yellowish; knobs of halteres darker above.
- 103. (a) Palps much shorter, not as long as antennae; proboscis much shorter, only about or scarcely longer than 1 mm., not or scarcely projecting much beyond buccal cavity; white hair on sides of tergites 1-3 not uniform or equally dense throughout, that on apical part of tergite 2 and basal half of 3 together forming a denser patch, composed of somewhat decumbent, scale-like, brilliantly gleaming, silvery white elements, flanked anteriorly and below by conspicuous, black hairs and with the rest of the white hairs on sides of tergites 1 and 2 erect, sparser and less gleaming and those on 1 flanked anteriorly by black ones; pale hair on thorax more straw-coloured, tending to be more pale sericeous yellowish in mesopleural tuft and antero-laterally; hair on sides of abdomen, both white and black ones, comparatively shorter, less shaggy.
  - (b) Palps much longer, slender, quite as long as antennae; proboscis distinctly longer, longer than 1 mm., projecting for quite a distance beyond buccal cavity; white hair only on sides of tergites 1 and 2, these equally dense and uniform throughout, with black ones apically on sides of tergite 2 and also some basally on sides of 1; pale hair on thorax more uniformly snow-whitish or sericeous whitish even in mesopleural tuft; hair on sides of abdomen distinctly longer, more shaggy in appearance.

3 cinereola n. sp. (p. 304)

104. (a) Face in front distinctly more prominent, projecting more cone-like when viewed from side and also appearing smooth and somewhat tumid; antennal joint 3 (text-fig. 110) more markedly broadened basally, ham-shaped, more gradually narrowed apically, its slender part less slender; frons slightly more deeply depressed anteriorly; antennae usually with fewer or without any black hairs below; frons anteriorly with slightly more

- (b) Face in front distinctly not conically or tumidly prominent to the same extent, not so conically projecting; antennal joint 3 more bulb-shaped or golf-driver-club-shaped at base, thus more rapidly narrowed apically, its slender part longer; frons more shallowly depressed anteriorly; antennae with denser black hairs below; frons anteriorly with less conspicuous white hairs on sides; silvery white patch on sides of abdomen tending to be larger, more extensive.

  3 namaqua n. sp. (p. 306)
- 105. (a) Hair on thorax above, excepting only 1 or 2 black prealar bristles, without any intermixed black hairs in collar, discally or antero-laterally, all these hairs gleaming sericeous whitish like those in mesopleural tuft and on pleurae; postalar and scutellar bristles also pale.
  - (b) Hair on thorax above, apart from black prealar bristles, mainly dark or with a transverse row of dark collar-hairs and distinct or even numerous, black, intermixed ones anteriorly, discally and especially antero-laterally and on sides and those in mesopleural tuft and on pleurae sericeous whitish, straw-coloured yellowish to creamy or even pale sericeous yellowish; postalar bristles sometimes also dark or black.
- 106. (a) Antennae with black hairs above and below; hair on body, especially the sericeous white ones on sides of tergites 1-3 or 1-4 comparatively shorter; frons comparatively narrower, a little less than 2 times distance between outer margins of posterior ocelli on vertex.
  - (b) Antennae without any black hairs above and below, all sericeous whitish like those on frons anteriorly, face and genae; hair on body distinctly longer and white ones on sides of tergites 1-3 longer, more shaggy; frons comparatively broader, on vertex a little more than 2 times distance between outer margins of posterior ocelli.

♀ compsocoma n. sp. (p. 292)

- 107. (a) Antennal joint 3 more gradually broadened basally below, more leek-shaped at base, its lower basal part less bulging; wings distinctly narrower, more pointed, the cells relatively narrower, the alula and axillary lobe more reduced and the membrane more wrinkled and less iridescent; antennae with more numerous and denser black hairs below; only sides of tergites 1-3 with sericeous whitish hair.
  - ♀ kalaharica n. sp. (p. 285)
- 108. (a) Proboscis very short, stumpy, stoutish, confined to buccal cavity or scarcely projecting, its labellar lobes broad, ovate or ovoid, subequal in length to, or only a little shorter than, stoutish basal part, resembling two cupped hands when opened; face not or scarcely convex medially, sloping down to buccal cavity and its apical part not subconically prominent.
  - (b) Proboscis comparatively longer, more slender, usually projecting beyond buccal cavity, its labellar lobes narrower, less ovoid, always distinctly very much shorter than slender basal part even if they tend to be broadish or ovoid; face distinctly, even if only slightly, convex medially, its apex more distinctly raised and subconically prominent.
- 109. (a) Legs much paler, sometimes entirely pale yellowish brownish or yellowish reddish, sometimes with only the front and middle legs pale, but with the tibiae at least pale; antennae without any or with very few black hairs below; frons anteriorly with denser and more extensive whitish hair; sericeous whitish hair only on sides of tergite 1 and base of 2; hair on thorax above predominantly whitish and with fewer black ones on disc; pale scaling on body above more whitish; frons anteriorly narrower in relation to space on vertex, very much less than 2 times width of the latter; wings vitreous

hyaline, the alula and axillary lobe less reduced, the latter arcuately rounded and (b) Legs dark, the tibiae also darker, dark reddish or castaneous brownish; antennae with dense tufts of black hairs below; from anteriorly with the hair confined to sides and only those on extreme anterior part sericeous whitish; sericeous whitish hair on sides of tergites 1-3; hair on thorax above discally predominantly black; pale scaling on body above more sericeous yellowish or brassy yellowish; frons anteriorly comparatively very much broader in relation to vertex, broader than 2 times width of latter; wings faintly, but distinctly, tinged subopaquely greyish, the alula and axillary lobe more reduced, the latter elongate and narrow. . . . \$\text{\$\text{\$\text{\$}}\$ subcaliga n. sp. (p. 198)}\$ 110. (a) Hair on sides of abdomen with sericeous white ones only on sides of tergite 1, or on 1 and part of 2; fine, erect hairs on disc of thorax, scutellum and abdomen above either entirely or predominantly black, or at least with more numerous black ones. (b) Hair on sides of abdomen with sericeous white ones on at least sides of tergites 1-3; fine, erect hairs on disc of thorax, scutellum and abdomen above predominantly whitish, especially on disc of thorax and scutellum. . . . 111. (a) Wings with the base, alula, costal cell, base of marginal cell and sometimes to a lesser extent base of first submarginal cell and basal half or even entire first basal cell tinged (b) Wings with only the base, alula, costal cell and either base or only anterior basal part of first basal cell tinged subopaquely yellowish to pale yellowish brownish, the infusion thus less extensive. 112. (a) Hair on antennae below entirely white and that on at least front half of frons also white; dark tufts on sides of abdomen slightly shorter, more coffee-brownish in certain lights; propleural and humeral tufts on the whole more yellowish to pale fulvous; first submarginal cell entirely hyaline; legs more castaneous or sienna brownish. ♀ albizonata n. sp. (p. 294) (b) Hair on antennae below with numerous or even dense black ones and only hairs on extreme front of frons on sides white like those on face; dark tufts on sides of abdomen longer and black; propleural and humeral tufts more whitish or paler yellowish; base of first submarginal cell also tinged yellowish brownish like base of marginal cell; legs darker, very dark blackish brown or black. 113. (a) Black hairs on frons extending farther down middle part to nearer antennae and the pale hair anteriorly on each side more snow-whitish; coxae sometimes with more intermixed dark hairs among whitish ones; black tufts on sides of abdomen without long whitish hairs below them on the extreme sides of venter or inflexed margins of tergites; scaling across hind margins of tergites sparser, forming smaller patches on sides; anterior infuscation in wings slightly darker, less diffuse; front tarsi without any long, hair-like spicules below. (b) Black hairs on frons extending down to a little more than half-way and the pale hair anteriorly on each side tinted slightly more sericeous yellowish; coxae without any, or with fewer intermixed dark hairs; black tufts on sides of abdomen flanked below by long whitish hairs along extreme inflexed margins or on sides of venter; scaling across hind margins of tergites slightly more conspicuous, forming larger tufts or patches on sides; anterior infuscation in wings slightly paler, more yellowish brownish, more diffuse; front tarsi usually with a few longish, hair-like spicules below. ♀ plocamoleuca n. sp. (p. 296) 114. (a) Face in front markedly prominent, subtumid, distinctly projecting more cone-like; proboscis almost confined to buccal cavity or with only apices of labellar lobes projecting; antennal joint 3 more ham-shaped or leg-of-mutton-shaped at base, its lower (b) Face in front less markedly prominent, less tumid, more normally subconical; proboscis projecting distinctly beyond apex of buccal cavity for a longer distance, its entire labellar lobes usually beyond cavity; antennal joint 3 distinctly more golf-driver-club-

shaped at base, more rapidly broadened below and its lower basal part more bulging.

- - (b) Hair on antennae above and numerous ones or a tuft below black; hair on propleural and sternopleural parts either whitish like rest of hair on pleurae or with intermixed black ones; dark tufts on sides of abdomen black and, if tinted brownish, hair on antennae below with intermixed black ones; hair on frons in front narrowly confined to sides; infusion in wings, if present in first basal cell, is confined more or less to anterior basal part; veins dark brownish or blackish brown; legs usually darker or with the tibiae dark reddish brownish.
- 116. (a) Proboscis longer, projecting much beyond buccal cavity, its labellar lobes relatively longer, almost as long as antennal joint 3; palps markedly long, nearly as long as antennae; infusion in first basal cell in wings occupying almost entire basal half of the cell; middle cross vein at a little less than apical fourth to apical fifth of discoidal cell; prosternal part and front coxae with silvery white hairs; abdomen with the dark tufts on sides tinted chocolate-brownish in certain lights and with more conspicuous whitish hairs and scales on sides of venter below dark tufts.

♀ cinereola n. sp. (p. 304)

- (b) Proboscis shorter, projecting less beyond buccal cavity, its labellar lobes also relatively shorter, much shorter than antennal joint 3; palps very much shorter, much shorter than antennae; infusion in first basal cell confined to its anterior basal part; middle cross vein at a little less than apical third, or even more than apical third, of discoidal cell; prosternal part and front coxae with a few, or even numerous, black, intermixed hairs; abdomen with the dark tufts on sides black and with fewer and less pale hairs or more yellowish scales on sides of venter below dark tufts.
- 117. (a) Hairs on prosternal and propleural parts mainly whitish, without any or with fewer dark ones; hairs on coxae entirely or mainly whitish or with only a few, intermixed, dark ones on front and middle ones; band of scaling across hind margin of tergite I more sericeous yellowish to golden in the middle; interocular space on vertex usually about twice distance between outer margins of posterior ocelli.
- - (b) Hairs on sides of tergite 1 and sides of base of 2 only white; sides of thorax with more pale scaling and whitish hairs or fewer dark ones; pale scaling on venter, especially sides, yellowish or fulvous and much denser; axillary lobe distinctly broader, its hind margin more sharply curved; tibiae darker or black. . ♀ fulvipleura n. sp. (p. 301)
- 119. (a) Antennae below with more numerous black hairs and also white ones, the latter in form of a tuft on inner side and some on outer side; white hair on sides of frons anteriorly less extensive, more in form of a small tuft just above antennae; antennal joint 3 more rapidly broadened basally below, more golf-driver-club-shaped at base, its lower basal part more produced.

- 120. (a) Sides of thorax and antero-laterally with fewer, sparser, intermixed, black hairs and usually without black ones on each side of thorax above wings and on postalar calli.

  \$\int nigrescens \text{ Ric. (p. 288)}\$
  - (b) Sides of thorax antero-laterally, anteriorly, on sides above wings and even on postalar calli with distinctly more numerous and more conspicuous, black, intermixed hairs.

    ♀ nigrescens var. aterrima n. (p. 290)

#### GROUP I

Representatives of this group are characterized by a markedly short, thick, stumpy, plump and stoutish proboscis (cf. text-fig. 40, b) which is usually confined to the buccal cavity or scarcely projecting much beyond its apex and of which the labellar lobes are broad, well developed, ovoid or elliptical, appearing fleshy like those of Muscid-flies, not much or only a little shorter than, or sometimes even as long as, basal part of proboscis, resembling two cupped hands when opened and both these lobes and basal part of proboscis with conspicuous, fairly coarse and longish spinules.

#### SECTION I

Characterized by comparatively elongate and narrowish wings which are either entirely infuscated or extensively tinged brownish or blackish brown to a variable extent and of which the vein between the submarginal cells originates at, or almost at, right angles and at this bend is provided with a distinct or conspicuous basally directed appendix; antennal joint 3 long, almost rod-like, very gradually narrowed apically.

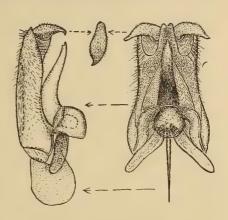
## Lomatia acutangula Lw.

(Loew, p. 203 and tab. ii, fig. 10, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 113, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 142, The Bombyliidae of the Ethiopian Region, 1924.)

Body, including legs, predominantly black; hind margins of sternites narrowly pallid; tibiae sometimes tending to be blackish brown; body itself somewhat elongate; abdomen elongate, more or less parallel-sided, especially in 3. Vestiture with the hairs predominantly black on ocellar tubercle, on base of frons and to a great extent also on frons anteriorly; short ones on antennal joints 1 and 2 above also black; some intermixed ones on frons anteriorly, fairly dense ones on sides of frons anteriorly, those on antennae below, those densely on sides of face and sparser ones on genae gleaming sericeous whitish; bristly hairs on thorax above, three or four prealar, the postalar and scutellar bristles, hairs on abdomen above, especially across hind margin of tergite 2 and discally on 3–7 (or 8), finer tuft-like ones on sides of tergites 4 (or 5)–7 (or 8) and those on sternites 7 and 8 in 3 and on last sternite in 4 black; hair on humeral part, on upper part of mesopleuron, in metanotal tuft, dense ones on sides of tergite 1, erect ones on disc of tergite 1, to a certain extent on disc of 2, bristly ones on sides of 2–3 (or 4) and intermixed ones on sides of 4 and 5 or even 6 gleaming

sericeous yellowish to yellowish; hair on pleurae, pectus and base of venter sericeous whitish to snow-whitish, contrasting with yellowish ones above; longish, sparse hairs on venter and dense ones on sides of venter also sericeous whitish; genital brush of ♀ dark, but gleaming velvety brownish; hairs on femora gleaming whitish; dense, fine, hair-like scaling on thorax and scutellum above and in distinct, broadish, transverse bands across hind margins of tergites, broader on sides, gleaming sericeous yellowish, brassy to golden yellowish, being denser on abdomen and more hair-like and tufty on sides of tergites 5-7 (or 8) and across hind margin of last tergite; scaling on venter predominantly sericeous or silvery whitish, denser along sides and across hind margins of sternites; scaling on rest of abdomen above black; flattened scaling on femora and outer hinder aspect of tibiae predominantly whitish or greyish white and that on apical parts of femora and on rest of tibial surfaces dark, gleaming greyish. Wings rather narrowish, comparatively elongate, with a yellowish brownish to pale chocolate brownish infusion, occupying base, costal cell, greater part of marginal and first submarginal cells, entire first basal cell, basal part of second submarginal cell, greater part of first posterior cell and along veins of second posterior cell and apical part of discoidal cell, this infusion tending to be more pronounced along veins and in 3 it is well marked off preapically from a more greyish hyaline apical part; infuscated parts in Q appearing more diffused and extensive, but with apical part also more hyaline; greater part of second basal and discoidal cells, third and fourth posterior cells and anal and axillary cells in both sexes greyish hyaline like apical part though not appearing subopaquely whitish like apical part; veins mostly yellowish brownish, the first, third and fifth ones however yellowish; base of vein between submarginal cells bent at right angles to third and provided with a basally directed, short stump or appendix at the bend; discoidal cell elongate, much longer than first posterior cell; the latter distinctly narrowed apically; middle cross vein much beyond middle of discoidal cell; discoidal cell acute apically, its apical vein sinuous, more or less parallel to hind margin; axillary lobe narrow and alula much reduced; squamae opaquely whitish, its fringe whitish to pale yellowish whitish; knobs of halteres pale yellowish above. Head with the frons shining in both sexes, only slightly longitudinally impressed anteriorly; interocular space on vertex in 3 about 12 times distance between outer margins of posterior ocelli or quite as broad as length of antennal joint 1; vertex in 2 about or scarcely a little more than twice distance between outer margins of hind ocelli; antennae (text-fig. 40, a) comparatively long, joint 1 quite or a little more than 2 times as long as joint 2, joint 3 comparatively long, at least 1½, sometimes nearly 2, times as long as 1 and 2 combined, slender, almost rod-like, only gradually broadened basally, not knob-like or bulging below as in most other species; proboscis (text-fig. 40, b) relatively short and stout, projecting only very slightly beyond buccal cavity, its labellar lobes broad, well developed, appearing broad and ovate, fleshy, resembling two cupped hands when opened, with both the base of proboscis and the labella covered with conspicuous, hair-like spinules; palps slender, quite as long as antennal joint 3. Legs with 1-3 small spines on front femora above in apical half; middle ones with 2-3 stoutish spines on lower anterior aspect more or less in apical half; hind ones with a row of about 3-8 spines on outer lower aspect and with about 8-14 irregularly disposed spines in apical part or half above and laterally, of which 2-5 are usually longer and with an irregular row of about 6-9 smaller

and shorter spines on inner lower aspect; basal joint of front tarsi in ♀ without any longer, more bristle-like spicules below. Hypopygium of 3 (text-fig. 42) reversed in position, its dorsal part being directed ventralwards and the last sternite being dorsal in position under the last tergite. This latter segment is slightly notched apically and has the inner part of the hind margin apically slightly produced basalwards in the form of a ledge or plate which is itself deeply incised and slit-like medially. The hypopygium itself with the outer apical angles of basal parts only slightly angularly prominent; beaked apical joints elongateovate (shown between side and ventral



Text-Fig. 42. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of & Lomatia acutangula Lw.

views), its apical beak directed downwards and slightly outwards, its dorsum slightly convex, covered with fine, sparse hairs and with its lower surface hollowed out; aedeagus shaped as shown in figures, not extending beyond inner apical angles of basal parts; basal strut shaped as shown in left-hand figure.

Length of body: about 9-12½ mm. Length of wing: about 11½-15 mm. Locality: Natal and Zululand.

Easily recognized by its narrowish, elongated and infuscated wings and by its rather longish, almost rod-like third antennal joints.

Lomatia acutangula var. transvaalensis n.

(Syn. = infuscata Bezzi, in part, p. 145, The Bombyliidae of the Ethiopian Region, 1924.)

Some specimens in the collections before me, though closely resembling *acutangula*, nevertheless constitute a very distinct variety which is characterized and distinguished from *acutangula* s. str. by the following characters:

Wings relatively very much longer, about 14-17 mm., darker, more extensively infuscated, without any clearer, greyish or more hyaline, apical part, the infuscation extending right to apex, being darker along the veins, but however

also with greater part of second basal and discoidal cells, third and fourth posterior cells and the anal and axillary cells clearer, more hyaline; veins on the whole darker; squamal fringe tinted more yellowish sericeous. Vestiture with the pale hair on sides of thorax, sides of tergite 1 and to a certain extent also on sides of 2-3 (or 4) gleaming paler, less yellowish, more straw-coloured yellowish; that on sides of frons anteriorly, sides of face, genae and on antennae below distinctly tinted more yellowish, more sericeous yellowish; that on disc of thorax above with distinctly denser and more numerous black bristly ones; hair on sides of abdomen with distinctly more extensive, denser, more numerous and more conspicuous, black ones on sides of tergites 2 (or 3)-8 in 3 and 3 (or 4)-7 in ♀ and sometimes with sparser and fewer black ones on last sternite in Q; fine hair-like scaling, apart from indications of narrow transverse bands, distinctly more uniformly dispersed on abdomen above and not so concentrated in broadish and conspicuous bands as in acutangula, these scales on abdomen also finer, gleaming more reddish golden on disc of thorax and on abdomen in Q and even in 3 also deeper yellowish; black scaling on tergites also distinctly sparser, less dense; scaling on femora tinted more greyish yellowish. Sternites with slightly broader, more conspicuous, pallid, hind margins and venter tending to be more infused with brownish or yellowish brown.

From 6 33 and 4 99 (types in the Transvaal Museum).

Length of body: about 10-13 mm.

Length of wing: about 14-17 mm.

Locality: Transvaal: Pretoria (van Son, 8 Dec., 1932) (holotype); Pretoria (Wagner, 24 Nov. 1940) (allotype); Pretoria (Munro, 17 Dec. 1913 and 13 Dec. 1914); Krabbefontein (Breyer, Dec. 1902); Muckleneuk Hill (19 Dec. 1905); Natal: Candover Station (Marley, Oct. 1929). Zululand: Pongola River (Marley, Oct. 1929); Hluhluwe (Marley, 9 Nov. 1928).

#### Lomatia neavei Bezz.

(Bezzi, p. 143, The Bombyliidae of the Ethiopian Region, fig. 11, 1924.)

This species, which was described from a  $\beta$  and  $\varphi$  from Mt. Mlanje in Nyasaland, is not represented in the collections before me, but it obviously belongs to the same section as acutangula. According to the description of Bezzi and the figure of the wing given, it appears to differ from the South African species chiefly in having the wings more uniformly and extensively infuscated,

the posterior basal areas and cells not being clearer or more hyaline than the anterior parts.

## SECTION 2

Wings broader, less elongate, predominantly or entirely hyaline or with spots and infusions at least much reduced or confined anteriorly and basally, without any distinct or conspicuous appendix at base of vein between submarginal cells; knobs of halteres usually pale, rarely dark; antennal joint 3 not markedly long or rod-like, usually broadened or bulging to a variable extent basally below.

## Lomatia dimidiata n. sp.

Body black; legs predominantly pale reddish yellow, the extreme apices of hind femora and apical halves of tarsi darkened, more blackish brown. Vestiture with the hairs on sides of frons in front, sides of face, antennae below and on genae snow-whitish or sericeous whitish; hair on basal half of frons, ocellar tubercle, antennae above and across extreme front margin of pronotum blackish brown to black; hair on pleurae, pectus, in metanotal tuft, on sides of tergites 1-4 and sides of 7 in ♂ and on sides of 1-2 in ♀ and to a great extent on venter in both sexes gleaming sericeous whitish; that on thorax above also predominantly sericeous whitish in 3, but distinctly tinted very pale sericeous yellowish in Q, especially across front part; prealar bristles whitish or pallid in 3, pale yellowish to reddish yellow in 9; bristly hairs on postalar calli and on scutellum also gleaming slightly pale sericeous yellowish in certain lights, more so in Q; abdomen with a dense tuft of dark blackish brown hairs on sides of tergites 3-6 in 2 and 5 and 6 in 3, also with black ones across hind margin of last tergite in both sexes, more so in Q and also with dark hairs on last sternite in Q; fine, hair-like scaling on sides of head sericeous whitish like that on from in front, the sparse ones on occiput, in Q especially, gleaming golden; scaling on thorax, scutellum and abdomen above gleaming deep golden to slightly reddish golden in  $\mathcal{P}$ , paler and sparser in  $\mathcal{F}$ , that on abdomen in  $\mathcal{P}$  more densely concentrated across hind margin of tergite 1 and as ill-defined, narrowish bands across other tergites, especially on sides; rest of scaling on abdomen black; that on venter predominantly sericeous whitish, or pale sericeous yellowish in apical part only, in 3 and predominantly pale sericeous yellowish to pale brassy yellowish in Q; flattened scaling on legs mainly whitish. Wings more or less dimidiately infuscated, the greater apical and hinder parts however vitreous hyaline, with the dark coffee-brownish infuscation in anterior part occupying base, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell and also greater part of second basal cell, the hind border of this infuscation extending into or confluent with a large rounded spot on apical cross vein of first basal cell and another spot at apex of second basal cell; a smaller spot-like infuscation also at base of third posterior cell and sometimes also at base of vein separating submarginal cells; apical part of anterior infuscation sharply and obliquely demarcated from hyaline apical part; veins brownish; basal comb almost wanting; second vein normally bent up and not recurved at its end; a rudimentary stump at base of vein separating submarginal cells sometimes faintly indicated; first posterior cell widely open, its sides more or less parallel; axillary lobe comparatively narrow, reduced; alula much reduced; squamae subopaquely whitish to yellowish white, fringed with whitish hair; knobs of halteres very pale yellowish to whitish above. *Head* with the indentation in hind margin of eyes subangularly rounded; interocular space in 3, at narrowest part in front of ocellar tubercle, narrow, about as broad as

front ocellus, that on vertex in  $\mathcal{Q}$  about  $2-2\frac{1}{4}$  times distance between outer margins of hind ocelli; frons foveately depressed anteriorly; antennal joint 3 broadened basally, more or less bulb-shaped; proboscis stoutish, scarcely projecting much beyond buccal cavity, its labellar lobes short, broad, ovate, but shorter than base of proboscis. Legs with 1 or 2 spines on lower, medial, anterior aspect of middle femora and about 2 or 3 on outer, lower, apical aspect of hind ones as well as a variable number of small spinelets on upper outer apical aspect, of which 2 to 4 apical ones are longer. Hypopygium of  $\mathcal{J}$  (text-fig. 43) shown in side view and with a dorsal view of the right beaked apical joint.

From 3 33 and 2 99 (types in the Transvaal Museum).

Length of body: about  $6\frac{1}{2}$ -7 mm. Length of wing: about 7- $7\frac{1}{2}$  mm.

Locality: South-eastern Cape Province: Uitenhage at De Hoek (Munro, 11 March 1919).

Chiefly characterized by its dimidiately infuscated wings in which the roundish spots at apices of basal cells are confluent with the anterior infuscation and by its predominantly whitish hair and its yellowish legs.

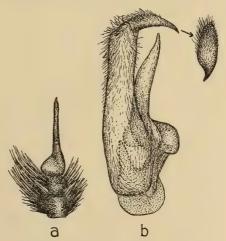
# TEXT-FIG. 43. Side view of hypopygium and dorsal view of right beaked apical joint of a Lomatia dimidiata n. sp. Titenhage at De Hoek (Munro, infuscated wings in which the

Lomatia heterocoma n. sp.

Body and legs black, tibiae however sometimes more blackish brown than black. Vestiture with the hair on frons and on antennae above and below in 3 predominantly black and that on more than basal half of frons, on antennae above and intermixed ones below in 3 also black as well as a few on lower parts of genae in some 3; tuft of hair on each side of frons anteriorly just above antennae in 3, numerous ones on antennae below in 3 and dense hair on each side of face and on genae in both sexes gleaming sericeous whitish; hair on thorax above and below and densely and shaggily on sides of tergites 1-4 and predominantly on venter in 3 snow-whitish or sericeous whitish; that on thorax above in 3, especially on sides, and on upper part of mesopleuron and sides of tergites 1-4

in Q gleaming golden yellowish or very deep sericeous yellowish, that on sides of tergite 1 however more sericeous whitish; that on pleurae and on venter in 2 sericeous whitish as in 3, but contrasting with that on body above; prealar bristles usually with one, rarely two, black; postalar and scutellar bristly hairs whitish in  $\beta$ , yellowish or sericeous yellowish in  $\mathfrak{P}$ ; metanotal tuft whitish in  $\mathfrak{F}$ , but sometimes with a few dark hairs intermixed, entirely yellowish in 9; hair on sides of tergites 5-7 (or 8) black, dense and tuft-like in 3, less shaggy in 2 and in both sexes overhanging the whitish or pale ones on sides of venter below; hair-like scaling on body above in & sparse, gleaming more whitish, conspicuously gleaming deep yellowish to reddish golden in Q, very densely and broadly concentrated transversely across tergite 1 and on sides of the others; fine scaling on sides of head silvery whitish in  $\beta$ , pale sericeous yellowish in  $\Omega$ , that on from in front sericeous whitish in both sexes, but very sparse or wanting in 3; scaling on venter gleaming sericeous whitish in 3, more pale sericeous yellowish towards apex in  $\mathcal{P}$ ; fine hairs and flattened scaling on femora and tibiae snow-whitish. Wings mainly vitreous hyaline, but with the base, costal cell and entire or greater part of first basal cell in & tinged subopaquely yellowish whitish to yellowish and in 2 also with the basal halves of marginal and first submarginal cells and to a certain extent also second basal cell yellowish, the infused anterior part in 2 thus not only more extensively but also slightly more deeply yellowish; faint, spot-like infuscations present at base of second and third veins and on apical

cross veins of basal cells; basal comb almost wanting; second vein normally bent up at its end; axillary lobe moderately broad, arcuately rounded, more so in 3; squamae opaquely whitish, dark-bordered, fringed with white hairs; knobs of halteres pale yellowish or yellowish white. Head with the interocular space in 3, at narrowest part in front of ocellar tubercle, about as broad as front ocellus; space on vertex in ♀ about 2½-2½ times distance between outer margins of posterior ocelli; frons transversely depressed in front and in 3 almost bare medially in this depression; antennal joint 3 (textfig. 44, a) much broadened basally, more so below, distinctly bulb-



Text-Fig. 44. (a) Antenna of & Lomatia heterocoman. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of & of same species.

shaped at base; proboscis short, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes conspicuous, very broad, ovate, fleshy and longer than basal part of proboscis, resembling two cupped hands when opened. *Legs* usually with only 1 spine on middle femora in front, with 2 spines on outer lower

apical aspect and also 2 apical ones above on hind femora. Hypopygium of 3 (text-fig. 44, b) showing side and dorsal views of right beaked apical joint, with the hairs on beaked apical joints rather longish and with the basal strut shaped as shown in figure.

From 3 33 and 2 99 (types in the Commonwealth Institute).

Length of body: about 6-7 mm. Length of wing: about 7-8 mm.

Locality: National Park (Ogilvie, March 1932) (holotype); National Park (Mackie, March 1932) (allotype). Southern Rhodesia: Hope Fountain (Jones, 12 Feb. 1919).

The  $\mathcal{Q}$ -paratype from Rhodesia probably represents a slight varietal form, differing from the allotype in having no intermixed black hairs on antennae below and in having the yellowish infusion in anterior part of wings slightly more intense.

## Lomatia matabeleënsis n. sp.

Two much-denuded specimens in the collections before me resemble the Q of *heterocoma* so closely that they may almost be considered as a variety or race of it. Certain distinct differences, however, point to a separate specificity. Compared with *heterocoma* they show the following differences:

Antennal joint 3 distinctly more rapidly broadened basally below, its lower basal part distinctly more projecting, more lobe-like, the base thus more golfdriver-club-shaped and not bulb-shaped; labellar lobes of proboscis relatively shorter, less broad and even shorter than base of proboscis. Wings with the clear part tending to be more greyish hyaline than vitreous hyaline; anterior infuscated parts tending to be darker, more brownish; veins on the whole darker; knobs of halteres distinctly darker, more yellowish brownish above. Legs with the tibiae distinctly paler, more reddish brownish to sienna brownish. Vestiture without any or with much fewer intermixed black hairs on antennae below; hair on thorax above and on sides of abdomen more sericeous whitish, not sericeous yellowish or yellowish; prealar bristles usually with two conspicuous black ones; hair on abdomen with a few black ones on each side submedially across hind margin of tergite 1 and with the black ones on sides of 5-7 apparently less dense; scaling on abdomen above less deep golden yellowish, more brassy or sericeous yellowish, especially on sides towards apex, and with band of scaling across tergite 1 apparently narrower.

From 2 PP (type in the Commonwealth Institute).

Length of body: about  $5\frac{1}{2}-6\frac{1}{3}$  mm. Length of wing: about  $6\frac{1}{2}-6\frac{2}{3}$  mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 1 Jan. 1923).

#### Lomatia tenera Lw.

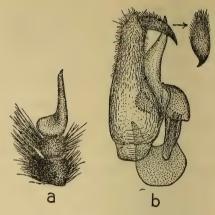
(Loew, p. 208, Dipt. Faun. Südafr., i, 1860.)

In the collections before me Bezzi wrongly labelled two entirely different species as *lenera* Lw., both of which do not agree with Loew's description and

which are now referred to two new species, canescens and albizonata respectively, in this revision. It thus appears that this species has not been recorded in any collection since Loew described it from a single 3-specimen in 1860. There are  $2 \ 33$  and  $1 \ 9$  of a species before me which agree with Loew's description (loc. cit.) as far as it goes. A supplementary description of this species, as based on these specimens, is as follows:

Body black; proboscis and legs however sienna brownish to blackish brown, the tibiae, especially front and middle ones, tending to be slightly paler. Vestiture with the hair on basal half of frons in 3 and in slightly more than basal half in 2 and that on antennal joint 2 above dark or blackish brown; that on frons anteriorly, on antennal joint 1 above, densely on antennae below, on sides of face and down genae gleaming sericeous or snow-whitish; hair on thorax above dense, gleaming more or less sericeous whitish in 3, sericeous yellowish to pale golden in  $\mathcal{Q}$ , that across front part of thorax in  $\mathcal{E}$  however distinctly sericeous yellowish to golden to a variable extent; hair on pleurae entirely sericeous or snow-whitish in both sexes, but in \$\varphi\$ contrasting much with that above; prealar, postalar and scutellar bristles usually not dark; fine, erect hairs discally on tergites 1-5 in 3 sericeous whitish, but with a slight, pale, sericeous yellowish sheen in certain lights; dense, shaggy hair on sides of tergites 1-4 in 3 gleaming conspicuously sericeous or silvery whitish, contrasting much with the dense black tufts on sides of tergites 5-7 and the black hairs across hind margin of 8; hairs on abdomen above in 2 slightly more sericeous yellowish and dense, pale ones on sides of tergites 1-4 whitish on sides of 1 and 2, but becoming sericeous yellowish to yellow on sides of 3 and 4, that on sides of 5-7 in ♀ also black; hairs on venter gleaming sericeous or snow-whitish in both sexes, denser along sides, even under lateral black tufts, and those on each side on last sternite, in 3 especially, sometimes conspicuously tufty and visible from above through the slightly sparser black hairs on sides of tergite 7; fine hairs on femora also white; scaling on body above sparse, gleaming whitish in 3, denser and brassy to golden yellowish in Q, arranged in denser and much broader bands across hind margins, especially on sides in Q where the bands occupy almost entire tergal surface; rest of abdomen above with black scales; scaling on venter predominantly sericeous or silvery whitish in both sexes; flattened scaling on legs predominantly whitish, that towards apical parts of femora above and to a certain extent on tibiae tinted feebly yellowish or greyish yellowish. Wings vitreous hyaline, iridescent, with the base, alula, costal cell and to a certain extent base of first basal cell subopaquely yellowish whitish; veins yellowish brownish to brownish; basal comb wanting; second vein undulating, rapidly bent up at its end; first posterior cell broadly open, not narrowed apically; middle cross vein at about, or a little less than, apical third of discoidal cell; the latter subtruncate to subacute apically; axillary lobe arcuately rounded, moderately broad; squamae opaquely whitish to yellowish whitish, dark-bordered, fringed with white hairs; knobs of halteres very pale yellowish to almost white. Head with the indentation in hind margin of eyes not very deep, subangularly

rounded; interocular space in 3, at narrowest part in front of ocellar tubercle, narrow, about as broad as front ocellus, the space on vertex in Q a very little less than twice distance between outer margins of posterior ocelli; frons anteriorly and medially slightly depressed longitudinally, with fairly dense hairs, even medially, in front in 3; antennae (textfig. 45, a) with joint 3 almost golf-driverclub-shaped at base, the lower part at base being prominent; proboscis short, stumpy, not projecting much beyond buccal cavity, its labellar lobes fleshy, broad, ovate and subequal in length to shiny basal part. Legs usually with I spine on anterior lower medial aspect of middle femora; hind ones usually with



TEXT-FIG. 45. (a) Right antenna of 3 Lomatia tenera Lw. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of 3 of same species.

about 2 spines on lower outer apical aspect and 2 apically above; basal joint of front tarsi in  $\mathcal{P}$  without any long, bristle-like spicules below. *Hypopygium* of  $\mathcal{P}$  (text-fig. 45, b) from side and with a dorsal view of right beaked apical joint.

In the Transvaal and South African Museums.

Length of body: about  $5\frac{1}{2}-6\frac{1}{2}$  mm. Length of wing: about  $6-6\frac{1}{2}$  mm.

Locality: Transvaal: Pretoria (Munro, 20 Dec. 1914 and 1 Jan. 1916); Pretoria (Swierstra, 18 Dec. 1905).

Characterized by the sericeous whitish hair on frons in front, on antennae and face in both sexes, the predominantly whitish hair on thorax and abdomen above in 3 and the yellowish to golden ones across front part of thorax.

#### Lomatia mitis Lw.

(Loew, p. 209, Dipt. Faun. Südafr., i, 1860, nec Hesse, p. 171, Ann. Transv. Mus., xvii, 1936.)

A somewhat denuded  $\mathcap{Q}$  from South-West Africa in the collections of the South African Museum appears to represent *mitis* which Loew described from a  $\mathcap{Q}$  collected in South-West Africa by Wahlberg. It agrees in most respects with Loew's short description and is as he stated in a footnote very close to *tenera*. From the  $\mathcap{Q}$  of the specimens which I take to be *tenera* it differs in the following respects:

Vestiture with black hairs on antennae above and numerous black ones intermixed below; hair on face slightly more sericeous yellowish; those on thorax above (as far as these are still present) pale sericeous yellowish, less yellowish than in tenera; thoracic and scutellar bristles also yellowish; hair on pleurae

also sericeous whitish; those on sides of tergites 5-7 also black as in tenera. Wings with the discoidal cell relatively longer, subequal in length to first posterior cell; third posterior cell relatively longer; third and second posterior cells tending to be equally wide on hind margin and not with the second broader than third as in tenera. Head with the interocular space on vertex ( $\mathfrak{P}$ ) slightly broader, quite or a very little more than twice width of ocellar tubercle; frons anteriorly more depressed transversely; antennal joint 3 distinctly less broadened basally below, less golf-driver-club-shaped, but more bulb-shaped at base, more conical and more gradually tapering from base, thus less slender; proboscis even slightly stouter, its labellar lobes shorter than basal part. Legs as in tenera, the front tarsi also without longish, bristle-like spicules below.

Length of body: about 7 mm. Length of wing: about 7 mm.

Locality: South-West Africa: Kaross in the Kaokoveld (Mus. Exp., Feb. 1926).

My identification of this species in 1936 (loc. cit.) was based on identifications of Bezzi which I have since found to be erroneous. I have consequently described the 1936 specimens as a new species, kalaharica, further on. From Loew's description of inornata (p. 209, Dipt. Faun. Südafr., i, 1860), also from South-West Africa, and which Bezzi subsequently renamed loewi (p. 613, Trans. Ent. Soc. Lond., 1911), it is doubtful whether the latter is a species distinct from mitis. It apparently differs only in size, in having fewer black hairs on sides of tergites 5–7 and more yellowish hair on venter. It may only represent a smaller form of mitis.

# Lomatia latifrons n. sp.

Body black; labellar lobes of proboscis dark piceous brownish; tibiae and basal parts of tarsi predominantly yellowish to pale yellowish brownish, contrasting with black femora; apices of tibiae darkened to a variable extent and greater part of tarsi, especially last four joints, also darkened. Vestiture with the hair on head, thorax, scutellum and abdomen above and below predominantly and conspicuously snow-whitish or sericeous whitish; shortish, bristly hairs on ocellar tubercle, at base of frons and some, or a few, intermixed hairs at extreme apex of abdomen dark or blackish; prealar bristles and fine hairs on femora also entirely white; pale scaling on body above also gleaming sericeous whitish, that on abdomen (as far as it is not denuded) arranged across hind margins of tergites, especially on sides; rest of scaling on abdomen black; scaling on legs white. Wings clear, vitreous hyaline, iridescent, with only base, alula, costal cell and to a certain extent base of first basal cell subopaquely whitish, only very extreme base of wings blackish; veins dark brownish, the first vein and the others towards extreme base paler, more yellowish brownish; basal comb represented by an inconspicuous, small tuft of sericeous whitish hairs; apical part of second vein rather rapidly bent up; first posterior cell distinctly narrowed apically; middle cross vein at a little less than apical third to apical fourth of discoidal cell; the latter subtruncate apically; axillary lobe very well developed, roundly lobe-like; alula also well developed for this genus; squamae opaquely whitish, fringed with white hairs; knobs of halteres almost white. Head with the interocular space on vertex in 2 remarkably broad, about 3, or even a little more, times distance between outer margins of posterior ocelli; frons thus remarkably broad, only about half as broad again across antennae as on vertex, transversely depressed anteriorly and with the hairs equally dense in depression as on sides anteriorly; antennal joint 3 broadened bulb-like or club-like basally, the lower basal part not prominently produced; proboscis shortish, stumpy, not projecting much beyond buccal cavity, its labellar lobes fleshy, broad, ovate and a little shorter than base. Legs with the usual I spine on middle femora in front; hind ones with about 2 or 3 spines on lower outer aspect in apical part, with some small spinelets on lateral outer and upper aspect and with a few apical spines above; basal joint of front tarsi in 2 with some longish, bristle-like spicules below. From 2 99 in the South African Museum.

Length of body: about 8-9 mm. Length of wing: about 8-9 mm.

Locality: North-western Namaqualand (Richtersveld): Lekkersing (Mus. Esp., March 1935).

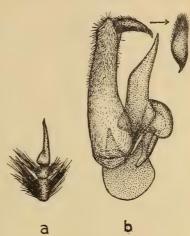
Easily recognized by the predominantly sericeous whitish hair on entire body, absence of black hairs on sides of abdomen, yellowish tibiae and broad interocular space. The broad interocular space and comparatively broad from distinguish it at once from  $\varphi\varphi$  of other species belonging to the group with short and stumpy proboscis and hyaline wings.

# Lomatia leucophasia n. sp.

Body black; labellar lobes of proboscis dark brownish; tibiae and especially tarsi also tending to be more piceous brownish or blackish brown than black. Vestiture with the hair on entire frons and on antennae above in 3 and on frons basally in 2 black; that on antennae below, sides of face and on genae snowor sericeous whitish in both sexes; hair across front of collar, in of especially, appearing dark in certain lights; that on thorax, scutellum, pleurae and entire abdomen above and below gleaming sericeous whitish in both sexes; two prealar bristles in 3 sometimes dark or blackish; abdomen without any black hairs or tufts on sides, all the hair being sericeous whitish and that towards apex on discal parts of tergites 5-7 (or 8) conspicuously dense like that on sides of tergites; fine hairs on femora entirely whitish; hair-like scaling on body above (where not rubbed off) whitish in 3, but tinted slightly sericeous yellowish to pale brassy in 9; flattened scaling on legs dense, predominantly snow-whitish. Wings clear, vitreous hyaline, iridescent, with the base, costal cell and to a certain extent base of first basal cell subopaquely pale yellowish whitish to whitish, only extreme base of wings dark; veins mainly yellowish, sometimes

becoming pale yellowish brownish towards apex and hind border; basal comb wanting; second vein roundly bent up at its end; first posterior cell broadly open, but slightly narrowed apically; middle cross vein at about apical third to apical fourth of discoidal cell; the latter subtruncate apically; axillary

lobe markedly well developed, broadly rounded and lobe-like; alula also relatively well developed; squamae opaquely whitish, fringed with white hairs; knobs of halteres very pale, almost white. Head with interocular space on vertex in 3 as wide as ocellar tubercle, the space in front of tubercle about as broad as front ocellus; interocular space in 2 about twice distance between outer margins of posterior ocelli; frons relatively broader anteriorly in ♂ than in ♀, medially foveately depressed anteriorly, slightly more broadly so in 3, this depression bare in 3, but less so in  $\mathcal{Q}$ ; antennae (text-fig. 46, a) with joint 3 broadened club-like or sub-bulblike at base, the lower basal part not very Text-Fig. 46. (a) Right antenna of prominently bulging, the rest of joint rather stoutish and longish; proboscis shortish, projecting only very slightly beyond buccal cavity, its labellar lobes fleshy, broad, ovate



3 Lomatia leucophasia n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of 3 of same species.

and a little shorter than shining basal part. Legs with 1 spine on lower anterior aspect of middle femora; hind ones with 1 or 2 spines on outer lower apical aspect and some smaller, irregularly arranged spinelets on outer lateral aspect in apical half and also 2 or 3 longer ones apically above; basal joint of front tarsi in  $\mathcal{P}$  without very long spicules below. Hypopygium of  $\mathcal{F}$  (text-fig. 46, b) from side and also with the right beaked apical joint shown from above; lateral struts rather long.

From 7 33 and 2 99 (types in the South African Museum, paratypes in the British Museum).

Length of body: about 6-7 mm. Length of wing: about 6-7 mm.

Locality: South-West Africa: Kaross in the Kaokoveld (Mus. Exp., March 1925) (types); Warmbad (Mus. Exp., Feb. 1925); Okahandja (Turner, 17-23 Feb. 1928). Cape Province: Worcester (Turner, 17-31 Aug. 1928).

Easily recognized by its predominantly sericeous whitish hair, entire absence of black hairs or tufts on sides of abdomen and clear, hyaline wings in which the axillary lobe is well developed. The 3-specimen from Worcester does not differ in any way from the South-West African specimens and, unless the Cape locality is wrong (which is quite probable) this species is widely distributed.

## Lomatia ovamboënsis n. sp.

A somewhat denuded 3-specimen, of which the antennae are also missing, resembles leucophasia so closely that it may even be considered as a distinct variety of the latter. Certain characters, however, seem to point to a separate specificity. Compared with specimens of leucophasia it differs in having the hairs on antennal joints 1 and 2 below predominantly black and not entirely white; those on genae also not entirely whitish, but with intermixed dark ones on lower parts; hair on body more straw-coloured than sericeous whitish, that on sides of abdomen even distinctly tinted more sericeous yellowish and without any dark prealar bristles; interocular space in 3 in front of ocellar tubercle distinctly longer, much more than length of tubercle; frons anteriorly less distinctly and less deeply depressed. Wings with the first posterior cell distinctly more broadly open, its sides not converging apically, more or less parallel; axillary lobe slightly less arcuately rounded. Hypopygium also very closely resembles that of leucophasia, but the beaked apical joints appear slightly shorter and thus relatively broader; basal strut similarly shaped, but more brownishly chitinized posteriorly and distance between dorsal incision and hind margin distinctly less than in leucophasia.

From a 3 in the South African Museum.

Length of body: about 5 mm. Length of wing: about 5 mm.

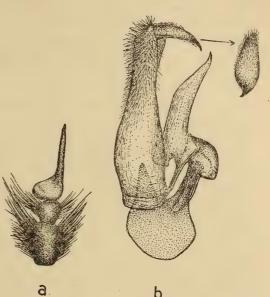
Locality: South-West Africa: Nomtele in Ovamboland (Barnard, Feb. 1921).

## Lomatia melanthia n. sp.

Body predominantly black; sutural parts of pleurae and basal parts of postalar calli sometimes infused with dark piceous brownish to blackish brown; proboscis and legs, especially tibiae, usually also dark reddish brownish or piceous brownish. Vestiture with the hair on frons, antennae above and below, sides of face and on genae in 3 predominantly black, a few hairs or a small tuft on side of face however gleaming whitish; hair on thorax above, on pleurae and legs entirely very dark blackish brown to black, having a slight purplish or mauvish black, velvety tint in certain lights; hair on scutellum gleaming sericeous yellowish; that in metanotal tuft black; dense, tuft-like and shaggy hairs on sides of tergites 1-3 conspicuously sericeous or silvery whitish, contrasting much with the dark, velvety blackish brown or black tufts on sides of 4-7; dark blackish brown or blackish hairs also present on extreme sides basally of tergite 1 and sometimes also on extreme sides of 2 basally and with black, bristly ones across hind margin of 8; fine, sparse, longish, erect hairs on abdomen discally predominantly sericeous whitish, but with a slight pale sericeous yellowish tint in certain lights and with the shortish ones dark or black; fine hairs on venter predominantly sericeous whitish to very pale sericeous yellowish; hair-like

scaling on abdomen above composed of sericeous whitish to very pale sericeous yellowish ones and black ones, the pale ones arranged in narrowish bands across hind margins of tergites, especially on sides, being more conspicuous,

slightly longer and almost tufty on sides towards apex and on sides of tergite 7; scaling on venter concentrated as sericeous whitish bands across hind margins of sternites; scaling on legs predominantly very dark, gleaming greasy and brownish in certain lights. Wings vitreous or slightly greyish hyaline, iridescent, with only the base up to cross vein in costal cell and including alula yellowish, becoming more brownish at extreme base; veins pale yellowish brownish, the first, third and fifth veins being more yellowish towards base; basal comb wanting; first posterior cell broadly open, not or scarcely narrowed apically; middle cross vein ranging in position from nearly apical fifth to less than apical third of discoidal cell; the latter somewhat acute apically,



Text-fig. 47. (a) Right antenna of 3 Lomatia melanthia n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of the same species.

its apical vein being subparallel to hind border; axillary lobe broadly and arcuately rounded; squamae opaquely brownish, fringed with dark velvety brownish to blackish brown hairs; halteres brown, their knobs dark brownish. Head with the indentation in hind margin of eyes relatively slight, rounded; interocular space on vertex in 3 as broad as ocellar tubercle and, at narrowest part in front of tubercle, about as broad as front ocellus for a distance quite as long as tubercle; frons triangular, very shallowly or scarcely depressed anteriorly, this anterior area bare medially; antennae (text-fig. 47, a) with the broadened base of joint 3 more or less in between golf-driver-club-shaped and bulb-shaped, the lower basal part prominent, but not so bulging as in some other species; proboscis short, stumpy, not projecting much beyond buccal cavity, its labellar lobes broad, fleshy, ovate and quite as long as, or a little longer than, base. Legs with the fine hairs on femora well developed; middle femora with a feeble spine on anterior lower medial aspect; hind ones with apparently only 1 feeble spine on lower outer apical aspect and another apically above; spicules in outer upper row on middle tibiae rather well developed, almost bristle-like. Hypopygium (text-fig. 47, b) from the side and also with a dorsal view of the right beaked apical joint; hairs on apical parts of basal parts fairly dense and conspicuous; beaked apical joints fairly broadish across apical part just beyond middle.

From 4 33 (type in the Rhodesian Museum, paratypes in the Transvaal and South African Museums).

Length of body: about 6-7 mm. Length of wing: about  $6-7\frac{1}{2}$  mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 29 Nov. 1922) (type); Sanyati Valley (Stevenson, Sept.-Oct., 1925); Vumbu Mts. (Drysdale March 1936).

Characterized by the conspicuous and contrasting tufts of sericeous whitish hair on sides of tergites 1-3, the predominantly black hair on head, thorax and pleurae. The type was labelled nigrescens Ric. According to the description of Ricardo (p. 92, Ann. Mag. Nat. Hist., (7), vii, 1901) and specimens of nigrescens in the Transvaal Museum, this determination is however erroneous. The true nigrescens has a small tuft of silvery hairs on inner aspect of first antennal joints, pale hairs on thorax above, in front and on sides, whitish hairs on dorsum, a white squamal fringe, a longer and more slender proboscis, etc.

## Lomatia melanoloma n. sp.

Body predominantly black; femora ranging in colour from yellowish brownish, brownish, dark piceous brownish to blackish brown, their upper surfaces usually dark; tibiae and basal halves of tarsi, especially front and middle tibiae, usually paler than femora, more pale yellowish brownish to yellowish, the tarsi becoming darker apically. Vestiture with the hair on basal half of frons, on antennae above in both sexes, some distinct intermixed ones on antennae below in 3 and rarely with a few in some QQ and sometimes with a few or some hairs on lower part of genae in 3 black; hair on front half of frons and on sides of face in both sexes and predominantly on antennae below, especially in Q, and those on entire genae, in Q especially, sericeous or silvery whitish; fine hair on thorax above and on its sides predominantly sericeous whitish in both sexes; that in collar in front, some intermixed ones on sides of thorax in front of wings and on upper part of mesopleuron, three or four prealar bristles, postalar and scutellar bristles however black; some hairs on each side, just above wings, sometimes tinted slightly sericeous yellowish; hair on pleurae and fine ones on femora entirely sericeous or silvery whitish; hairs in metanotal tuft black; hair on sides of tergite 1 and to a certain extent also on sides of 2 basally and sometimes also sparsely intermixed ones on sides of 3 and 4 gleaming conspicuously sericeous whitish, contrasting with the conspicuous tufts of predominantly black hair on sides of tergites 2-7 (or 8) and the black ones across hind margin of last tergite; hair on venter sericeous whitish and even those on last sternite predominantly whitish; pale hair-like scaling on body gleaming predominantly sericeous whitish in both sexes, denser across hind margins laterally on tergites, especially sides of 1, becoming longer, more hair-like and tufty on sides of posterior tergites; rest of scaling on greater part of abdomen above however dark or black; scaling on venter predominantly sericeous whitish; that on legs greyish whitish, but appearing dark or even blackish in certain lights. Wings mainly vitreous hyaline, iridescent, with only base up to cross vein in costal cell yellowish brownish to brownish and costal cell subopaquely yellowish to yellowish brownish; veins dark brownish, the costal vein, false vein and first main vein however more yellowish or pale yellowish brownish; basal comb poorly developed; second vein more or less straight, rapidly bent up at its end; first posterior cell broadly open, not visibly narrowed apically; middle cross vein usually between apical fourth and apical fifth of discoidal cell; the latter more or less truncate apically, its apical vein straight, somewhat oblique; axillary lobe arcuately rounded, not very much reduced; squamae opaquely dirty whitish, dark-bordered, fringed with white hairs; halteres dirty yellowish, their knobs brownish. Head with the interocular space on vertex in 3 narrowly as wide as ocellar tubercle, the space in front of tubercle very narrow for a distance subequal to length of tubercle, at narrowest part about as broad as front ocellus; space on vertex in 2 about 2, or a little more, times distance between outer margins of posterior ocelli; frons gradually widened anteriorly in  $\mathcal{D}$ , its apical width comparatively narrow in both sexes, its basal half in  $\mathcal{D}$ appearing polished and shining, its medial apical part longitudinally depressed in both sexes and with fairly dense hair anteriorly, even in middle, in both sexes; face medially slightly convex and shining; upper part of groove between buccal cavity and inner margin of eyes relatively deep; antennae (text-fig. 48, a) with joint 3 broadened bulb-like basally, the lower basal part more bulging than above, its slender part longish, sometimes quite 3 times length of broad base; proboscis short, scarcely projecting beyond buccal cavity, its labellar lobes short, fleshy, ovate and much shorter than basal part. Legs with about 2-4 (usually 3 or 4) spines on anterior medial lower aspect of middle femora; hind ones with about 4-8 spines in a more or less irregular row on lower outer aspect from about middle and also with 1 or 2 apical ones above; basal joint of front tarsi in Q with some or a few longish, bristle-like, pale spicules below, the longest being nearly, or quite, as long as joint itself. Hypopygium of 3 (text-fig. 48, b) from the side and also with a dorsal view of right beaked apical joint; basal strut more or less slightly produced apically as shown in this side view.

From 4 33 and 10 99 (types in the South African Museum).

Length of body: about  $6-7\frac{1}{3}$  mm.

Length of wing: about 6-7 mm.

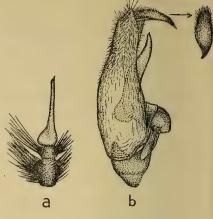
Locality: North-western Namaqualand (Richtersveld): Lekkersing (Mus. Exp., March 1935).

An interesting species which is apparently only found in Namaqualand and which is characterized by the extensive black hair on sides of abdomen, the pale tibiae and vitreous hyaline wings. From other species in the next Group, with extensive black hair on sides of abdomen and hyaline wings, it may at

once be distinguished by the short proboscis and more numerous spines on hind femora.

## Lomatia subcaliga n. sp.

Body black; proboscis and tibiae tending to be dark piceous brownish. Vestiture with the hair on greater part of frons, antennae above and densely below and some on lower part of genae in  $\mathcal{P}$  black; a tuft on each side of frons just above antennae, some intermixed hairs mostly on inner lower aspect of antennae, hair on sides of face and predominantly on genae silvery or sericeous whitish; hair on pleurae, in mesopleural tuft, on sides of scutellum, in metanotal tuft, densely on sides of tergites 1–3, on venter and hairs on femora sericeous or snow-whitish; sparse, erect



Text-fig. 48. (a) Right antenna of & Lomatia melanoloma n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of & of same species.

hairs on thorax and scutellum above, intermixed ones on humeral angles and on sides of thorax, prealar, postalar and scutellar bristles, dense tufts on sides of tergites 4-6, bristly ones across hind margin of tergite 7, some intermixed ones sometimes present apically on sides of 3 and hairs across hind margin of last sternite black; scaling on sides of head silvery whitish; that on body above sericeous yellowish to pale brassy yellowish; pale scaling on abdomen above arranged across hind margins of tergites, broadest across 1 and in form of small tufts on sides of 4-6, thus contrasting much with the black tufts laterally; rest of scaling on abdomen above black; scaling on venter whitish; flattened scaling on legs greyish to cretaceous whitish on inner hinder surfaces, but gleaming brownish or greyish brownish, or even dark, on anterior aspect. Wings faintly, though distinctly, tinged greyish, appearing faintly greyish brownish in certain lights, iridescent, with the base, costal cell and to a certain extent base of first basal cell slightly more subopaquely darker, more yellowish brownish; veins brown to dark brownish, becoming more yellowish brown or yellowish towards base; a distinct basal comb wanting; first posterior cell only very slightly, or scarcely, narrowed apically; middle cross vein at about a little less than apical fourth of discoidal cell; apex of latter somewhat acute; axillary lobe narrow, reduced; alula also much reduced; squamae opaquely brownish, fringed with white hairs; halteres yellowish brownish or brown, their knobs dark brown. Head with the indentation in eyes behind somewhat angular; interocular space on vertex in Q a little less than 2 times distance between outer margins of posterior ocelli; frons anteriorly slightly transversely depressed, almost without any hairs medially in front; antennal joint 3 more or less in between bulb-shaped and golf-driver-club-shaped at base;

proboscis stumpy, but projecting a little beyond buccal cavity, almost reaching antennae, its labellar lobes well developed, fleshy, broad, subequal to, or even slightly longer than, shining basal part. Legs with 1 or 2 spines on anterior lower medial aspect of middle femora; hind ones with about 2 spines on lower outer aspect in apical half and also with at least 2 apical spines above and with some minute spinelets on outer lateral and upper aspect; basal joint of front tarsi in  $\mathcal Q$  without any longish, bristle-like spicules below.

From a 2 in the Commonwealth Institute.

Length of body: about  $7\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}$  mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 8 Jan. 1922).

Characterized by its faintly tinged wings. There is a strong suspicion that this  $\mathcal{D}$  may eventually prove to be that of *melanthia* n. sp., but as the  $\mathcal{D}$  of the latter species has black hair on the entire head and thorax, predominantly dark scaling on legs and less greyishly tinged wings, this  $\mathcal{D}$  is provisionally placed as a separate species. It must, however, be remembered that there is much dimorphism as far as the colour of the vestiture is concerned in some species of *Lomatia* and that in such cases it is difficult to correlate or to allocate the sexes unless they are caught together at the same locality and at the same time.

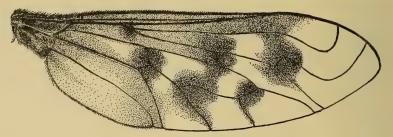
## Section 3

Representatives referred to this section of Group I usually have the wings much spotted, with distinct spots or infusions on cross veins and other veins and in some forms their spotted pattern is reminiscent of that of species of *Anthrax*; knobs of halteres are usually dark.

# Lomatia pterosticta n. sp.

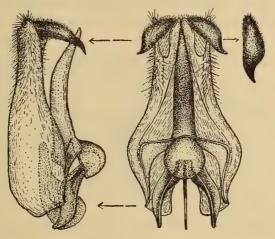
Body black; legs predominantly pale yellowish brownish to pale reddish brown, the extreme apices of front and middle femora, apical parts of hind ones, extreme bases of tibiae and apical halves of tarsi darkened and with bases of femora in some specimens also infused. Vestiture with the hair on sides of frons anteriorly, on sides of face, predominantly on antennae below and on genae sericeous whitish; hair on basal half of frons, antennae above and antennal joint 2 below and sometimes a few intermixed ones on antennal joint 1 below black; hair on sides of thorax above and across front part predominantly whitish, but gleaming slightly sericeous yellowish, especially anteriorly, due to intermixed yellowish or yellowish-tipped hairs, appearing more greyish white in certain lights; fine, bristly hairs on disc of thorax predominantly black, those on sides just above wings denser, more tuft-like; intermixed bristly hairs and prealar bristles on each side and some postalar and scutellar bristles also black; some of the prealar bristles in some specimens, intermixed bristles on upper part of mesopleuron and on humeral part, some intermixed hairs on sides of thorax

above wings on postalar calli and also on scutellum yellowish reddish or even appearing reddish golden; hair on pleurae and pectus predominantly white; hair in metanotal tuft and on sides of tergite 1 sericeous whitish or very pale sericeous yellowish in certain lights; erect hairs on discal parts of tergites 2 and 3 predominantly whitish, those on rest of abdomen above dark or blackish; a dense, shaggy tuft of conspicuous snow- or sericeous whitish hair on sides of tergites 3 and 7 in  $\beta$  and 3 and 6 in  $\varphi$ , separated by conspicuous, shaggy tufts of dense black hair on sides of tergites 2, 4, 5 and 6 and with black ones also across hind margin of last tergite; fine, hair-like scaling on each side of head sericeous whitish to very pale sericeous yellowish; that on disc of thorax and scutellum deep golden to reddish golden, especially in  $\varphi$ ; scaling on abdomen above composed of reddish golden and black ones, the golden ones more or less



Text-fig. 49. Wing of Lonatia pterosticta n. sp.

arranged across hind margins of tergites, especially across 1 in 2 and also on sides of the others in both sexes where the individual scales are longer, even more tufty; scaling on venter silvery or sericeous whitish, more concentrated across hind margins of segments; flat scaling on legs, especially femora, whitish, but dark on apices of femora and more yellowish on tibiae. Wings (text-fig. 49) very characteristically infuscated and spotted, the brownish to blackish brown infuscation in form of an infusion occupying base, costal cell, greater part of marginal cell, basal half of first submarginal cell and the entire first basal cell, and of large rounded spots at apex of second basal cell, apex of first basal cell, at base of second submarginal cell and at bases of second and third posterior cells respectively, the spot at base of second submarginal cell being confluent with infuscation in marginal cell and with the spots at apex of first basal cell and base of third posterior cell also confluent, the latter also extending to a variable extent as an infusion down vein between third and fourth posterior cells; apical parts of anal and axillary cells also infused to a variable extent and in some specimens even the apical parts of third and fourth posterior cells or even base of second basal cell clouded or infused to a variable extent; rest of wings greyish hyaline or clear; veins dark or blackish brown; basal comb poorly developed; second vein much recurved at its end; vein between submarginal cells usually bent at right angles at its base and there with a shortish stump; first posterior cell distinctly narrowed apically, more or less subspindle-shaped; middle cross vein at about, or a little more than, apical third of discoidal cell; axillary lobe relatively well developed, arcuately rounded, more so in  $\delta$  than in  $\mathfrak{P}$ ; alula well developed for a *Lomatia*, its apical lobe relatively broad; squamae opaquely dirty whitish to yellowish or even yellowish brownish, dark-bordered, fringed with whitish hairs; halteres brownish at base, becoming more yellowish apically, their knobs brownish above. *Head* with the interocular space on vertex in  $\delta$  as broad as small ocellar tubercle, at narrowest part in



Text-fig. 50. Side and ventral views of hypopygium of 3 Lomatia pterosticta n. sp.

front of tubercle very narrow, only about as wide, or even slightly narrower than, small front ocellus; interocular space on vertex in  $\mathcal{Q}$  broadish, a little more than 2, or even about  $2\frac{1}{2}$ , times distance between outer margins of posterior ocelli; frons somewhat flattened or flatly depressed anteriorly in  $\mathcal{J}$ , slightly more transversely so in  $\mathcal{Q}$ ; antennal joint 3 gradually broadened from base, bulb-like basally, more rapidly narrowed below than above; proboscis short, stoutish, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes broad, ovate and fleshy. Legs with about 2 or 3 spines on lower anterior part of middle femora; hind ones with a variable number of spines (2–6) in a row on outer lower part from just before middle and with 8–13 irregularly disposed, small spines on outer upper apical part; basal joint of front tarsi in  $\mathcal{Q}$  with some longer and more bristle-like spicules below. Hypopygium of  $\mathcal{J}$  (text-fig. 50) with the various structures as shown in the side and ventral views; basal strut shaped as shown in dotted outline in left-hand figure.

From 14 33 and 21 99 (types and paratypes in the South African Museum).

Length of body: about  $6\frac{1}{2}-8\frac{1}{2}$  mm. Length of wing: about  $7-8\frac{1}{2}$  mm.

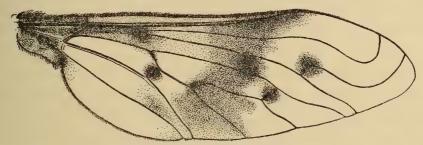
Locality: North-western Namaqualand (Richtersveld): Lekkersing (Mus. Exp., March 1935).

Easily recognizable by its characteristically spotted wings which are reminiscent of the wing-pattern of the megaspilus-group of Bombylius or that of certain species of Anthrax. It cannot be confused with any other known African species of Lomatia with the possible exception of spiloptera Bezz. (p. 148, The Bombyliidae of the Ethiopian Region, 1924) described from Nyasaland and which also has a similar type of wing-pattern. According to Bezzi's description the latter however differs from this species chiefly in having the infuscation and pattern of spots in the wings slightly differently arranged, the first posterior cell not narrowed apically, antennal joint 3 more bulging basally below and the legs entirely black.

## Lomatia uniplaga n. sp.

Body black; legs predominantly pale reddish yellow to pale yellowish brownish, the extreme apices of hind femora and tibiae and greater part of all the tarsi darkened. Vestiture (as far as this has not been denuded in the specimens) with the hair on frons anteriorly, especially sides, antennae above and below, sides of face and down genae sericeous whitish; hair on thorax above, pleurae, pectus, venter and even on abdomen above predominantly whitish or sericeous whitish; some hairs on sides of thorax above wings gleaming yellowish; presence of some black hairs only on sides of tergite 2 indicated in these denuded specimens; most of the short hairs on last tergite also blackish; prealar, postalar and scutellar bristles (where still indicated) pallid or yellowish; scaling on body above denuded in the specimens, but that on legs whitish. Wings (textfig. 51) with a characteristic pattern in the form of a broadish, dull, smoky brownish, transverse band across middle and spot-like infuscations on cross veins and other veins, this medial, transverse band extending from apex of costal cell obliquely across to end of vein between third and fourth posterior cells on hind margin and occupying the medial parts of marginal and first submarginal cells, apical part of first basal cell, medial part of discoidal cell, basal half of third posterior cell and greater part of fourth posterior cell, grading on basal side imperceptibly into the subopaquely whitish or pale yellowish whitish costal cell, bases of marginal and first submarginal cells and basal two-thirds of first basal cell and also into the clear and more vitreous hyaline bases of discoidal and fourth posterior cells, the clear second basal cell and vitreous hyaline anal and axillary cells, the apical part of wings also hyaline; smoky brownish, spot-like infuscations (smaller than in pterosticta) present at common base of second and third veins, on apical cross veins of first and second basal cells, base of second submarginal cell, at apex of discoidal cell and to a certain extent also at base of third posterior cell; veins brownish, darker in infuscated region; basal comb poorly developed; second vein recurved at its end; base of vein between submarginal cells more or less bent at right angles to third vein and there provided with a short or slight stump; first posterior cell distinctly narrowed apically; middle cross vein at a little less than, at about, or a little more than, apical fourth of discoidal cell; the latter

somewhat acute apically; axillary lobe broadish, arcuately rounded; alula moderately developed; squamae dirty yellowish, dark-bordered, fringed with whitish hairs; halteres brownish, their knobs brownish to dark brownish above. Head with the interocular space on vertex in  $\mathcal{P}$  about, or a little less than, 3 times distance between outer margins of posterior ocelli of the rather smallish tubercle; frons slightly and very shallowly transversely depressed anteriorly; antennal joint 3 broadened knob-like basally, more rapidly below, more bulb-shaped basally; proboscis short, thick, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes large, broad and fleshy and quite as long as base. Legs



Text-fig 51. Wing of Lomatia uniplaga n. sp.

with 2 or 3 spines on anterior lower medial part of middle femora; hind ones with a row of about 4–6 spines on lower outer aspect from before middle and with a variable number, 10–15, irregularly disposed, small spines on outer upper part in apical half, of which at least 2 apical ones are stouter and longer.

From 2 Pp in the South African Museum.

Length of body: about 8 mm. Length of wing: about 8-8\frac{1}{3} mm.

Locality: Karoo: Murraysburg Dist. (Mus. Exp., March 1931).

Easily recognizable by its wing-pattern and yellowish legs, the former character distinguishing it from all other species.

# Lomatia marleyi n. sp.

Body black; labella of proboscis tending to be reddish brownish; legs with the apical parts of femora and the tibiae also reddish brownish, appearing even more yellowish brownish where scaling has been rubbed off. Vestiture with the hair on frons predominantly black, only that on each side at extreme apex pale sericeous yellowish; hair on sides of face, on genae, and on antennae below pale sericeous yellowish; that on antennae above, on inner aspect of joint 1 and a few intermixed ones on joint 2 below black; hair on thorax above, on sides, upper part of mesopleuron, sides of tergites 1–4 and to a certain extent also on each side basally of 7 pale sericeous yellowish; that on sides of thorax and on sides of tergites 3 and 4 appearing even more yellowish and with dis-

tinctly more whitish hair on sides of 1; two or three prealar, some postalar and some scutellar bristles black; fine, sparse, erect hairs on abdomen above gleaming very pale sericeous yellowish, the more bristly ones on tergite 7 however black; dense, tuft-like hairs on sides of tergites 5 and 6 black; bristly hairs on sides and across hind margin of tergite 7 and a few inconspicuous ones apically on sides of 3 and 4 also black or dark; hair on pleurae and venter whitish, that on the former more contrastingly whitish; genital brush of Q gleaming sericeous yellowish, but with a faint mauvish pink sheen; scaling on body above deep golden yellowish, more conspicuous across hind margin of tergite 1 and on sides of others; rest of scaling on abdomen above predominantly black; scaling on venter pale sericeous yellowish to whitish; flattened scaling and hairs on legs mainly whitish, that on upper parts of femora however more yellowish. Wings almost dimidiately infuscated, the dark chocolate brownish anterior infuscation extensive, occupying the base, costal cell, more or less basal two-thirds of marginal and first submarginal cells, entire first basal cell and predominantly also second basal and discoidal cells; distinct and conspicuous, spot-like infusions also present on apical cross veins of basal cells, at base of vein between submarginal cells, on apical cross vein of discoidal cell and at base of vein between discoidal and third posterior cells; rest of apical and hinder parts of wings greyish hyaline, the dark anterior part however more or less marked off from more hyaline parts; anal cell and extreme bases of posterior cells however slightly tinged, constituting a sort of transition zone between the infuscated and uninfuscated parts; veins dark blackish brown; basal comb wanting; first posterior cell slightly narrowed apically; middle cross vein at about apical fifth of discoidal cell; base of vein between submarginal cells bent obliquely to third vein, with a tendency for a short stump to be present at bend; axillary lobe and alula reduced, narrowish; squamae opaquely yellowish brownish, fringed with whitish hairs; halteres brownish, their knobs brownish above. Head with the occiput comparatively well developed; interocular space on vertex in 2 about 2 times distance between outer margins of posterior ocelli; frons only slightly longitudinally impressed anteriorly; antennal joint 3 much broadened at base, golf-driver-club-shaped basally; proboscis short, stumpy, stoutish, projecting only very slightly beyond buccal cavity, its labellar lobes broad, ovate and scarcely, or only a little, longer than base. Legs with 1 or 2 spines on lower inner medial part of middle femora; hind ones with 2 spines on outer lower apical part and 2 apically above; basal joint of front tarsi in ♀ with some longish, bristle-like spicules below in more or less apical half.

From a  $\mathcal{P}$  in the South African Museum.

Length of body: about 8 mm. Length of wing: about 8 mm.

Locality: Natal: Kloof near Durban (Bell-Marley, Feb. 1915).

Easily recognized by its more or less dimidiately infuscated wings of which the dark chocolate brownish infuscation in anterior two-thirds is conspicuous and more or less marked off from the more hyaline parts. It cannot be confused with the  $\mathfrak P$  of dimidiata which has a less extensive and more distinctly marked off anterior infuscation, clearer discoidal cell, differently shaped third antennal joint, more extensive black hair on sides of abdomen, more whitish hair on body above and paler legs. The more extensive infuscation and spot-like infuscations in wings also distinguish it from matabeleënsis.

## Lomatia sinuosa n. sp.

Body and legs black; tibiae however appearing slightly more brownish where the scaling has been rubbed off. Vestiture with the hair on frons anteriorly on each side, sides of face, antennae below and on genae sericeous or silvery whitish; hair on rest of frons, antennae above and a very few intermixed ones on antennal joint 2 below black; hair on thorax above, sides of tergites 1-4 and to a certain extent also on each side apically of 6 and basally of 7 sericeous whitish, that on sides of thorax in front of wings however with a slightly more straw-coloured sheen in certain lights; hair on pleurae and on venter sericeous whitish; two prealar bristles, some scutellar bristles, the dense, tuft-like, bristly hairs on sides of tergites 5 and 6 and the hairs on sides and across hind margin of 7 black; sparse, erect hairs discally on abdomen above whitish, but dark and blackish towards apex and on last tergite; genital brush of Q appearing dark; scaling on body above deep golden yellowish, denser across tergite 1 and on sides of the others, more brassy to sericeous yellowish towards apex of abdomen; scaling on venter more whitish; flattened scaling and hairs on legs snowwhitish. Wings tinged or diffused with yellowish at the base, in costal cell, in slightly more than basal halves of marginal and first submarginal cells, entire first basal cell and to a fainter extent also in second basal and discoidal cells, this infusion imperceptibly grading into the greyish hyaline apical and hinder parts, the extreme apical part and hind border of wings being the clearest; comparatively faint, spot-like infusions present on apical veins of basal cells, at base of vein between submarginal cells and at base of vein between discoidal and third posterior cells; veins brownish, becoming more yellowish towards base; basal comb wanting; second vein very characteristically, somewhat deeply, sinuate and recurved at its end; base of vein between submarginal cells bent almost at right angles to third vein and there provided with a short stump; first posterior cell slightly narrowed apically; middle cross vein at about, or a little more than, apical third of discoidal cell; the latter acute apically; axillary lobe and alula reduced and narrowish; squamae opaquely whitish, fringed with whitish hairs; halteres dirty yellowish, their knobs pale yellowish brownish. *Head* with the interocular space on vertex in Q appearing comparatively narrowish, about, or a little less than, 2 times distance between outer margins of posterior ocelli; frons slightly, but distinctly, depressed anteriorly; antennal joint 3 bulb-like basally; proboscis short, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes broad, ovate, only a little shorter than base.

Legs with 1 spine on anterior lower medial part of middle femora; hind ones with 2 spines on lower outer apical aspect and 2 apically above.

From a  $\mathcal{P}$  in the British Museum. Length of body: about 7 mm. Length of wing: about 7 mm.

Locality: Natal: Weenen (Thomasset, March 1924).

Easily recognized by the deep kink and recurved apical part of second vein, which is much like that of *Tomomyza* or *Pantostomus*, and by the diffused yellowish brownish tinge in anterior basal two-thirds of wings. From *marleyi* it can at once be distinguished by the less demarcated and less dark infuscation, the apical sinuosity of second vein, the predominantly whitish hair on body above and more bulb-shaped base of antennal joint 3.

## Lomatia lawrencei n. sp.

Body and legs black; tibiae appearing more dark reddish brown when scales have been rubbed off. Vestiture with the hair on frons in 3 predominantly black, that on antennae above black in both sexes, but with a few intermixed black ones below also, especially in 3; hair on sides of face and on genae sericeous whitish and that on frons in front in 2 also with more sericeous whitish ones; hair on thorax above gleaming very pale sericeous yellowish to almost white in  $\beta$ , more distinctly sericeous yellowish to yellowish in  $\mathfrak{P}$ ; that on pleurae sericeous whitish in both sexes, but contrasting more with that above in 9; collar hairs dark and 2 black prealar bristles present; postalar and scutellar bristles sericeous yellowish to yellowish, more so in Q; erect hairs on abdomen above longer, sparser and only very pale sericeous yellowish in 3, denser, shorter and distinctly more yellowish in Q, with a few intermixed blackish ones submedially on each side on hind margin of tergite 1; hair on sides of tergites I-4 conspicuously white and shaggy in  $\Im$ , shorter in  $\Im$ , becoming slightly more yellowish on sides of 3 and 4 in  $\mathcal{D}$ ; tufts on sides of tergites 5-7 (or 8) black; hair on venter predominantly whitish, but longer in 3; hair-like scaling on body above sparser, more whitish in 3, dense and gleaming deep golden yellowish in Q, that on abdomen above, especially in Q, arranged across hind margins of tergites in comparatively broad and conspicuous bands, more evident on sides; rest of abdomen above with dense, black scaling; scaling on venter whitish in ζ, tinted slightly more sericeous yellowish in Σ; flattened scaling on legs snow-whitish. Wings with the greater apical and hinder parts greyish hyaline, the base, costal cell, greater part of first basal cell and to a certain extent also basal halves of marginal and first submarginal cells however faintly tinged or infused with dull, smoky brownish in 3 and more distinctly or more intensely and conspicuously so in Q, especially in the basal halves of marginal and first submarginal cells, and even to a certain extent also second basal cell, the wings in \(\times\) thus appearing more dimidiately infuscated; infusion however not well marked off, but imperceptibly grading into the greyish

hyaline parts, the latter in ♀ appearing less clear hyaline than in ♂; spot-like infusions present at base of second and third veins, on apical cross veins of basal cells and at bases of veins between submarginal cells and discoidal and third posterior cells respectively, fainter in 3; veins very dark blackish brown; basal comb wanting; first posterior cell widely open, its sides however slightly narrowed apically; second vein normally bent up at its end; discoidal cell somewhat acute apically; axillary lobe and alula much reduced, the former narrowish; squamae opaquely blackish brown, fringed with white hairs; halteres dark brownish, their knobs brownish. Head with the interocular space in front of ocellar tubercle in 3 very narrow, almost touching, only as broad as very narrow front ocellus; interocular space on vertex in 2 about 2 times distance between outer margins of posterior ocelli; frons shallowly depressed anteriorly, the middle part in & being sparsely haired; antennae (text-fig. 52, a) with joint 3 characteristically broadened basally, the lower basal part prominently bulging, more or less golf-driver-club-shaped and with the slender part long; proboscis short, stumpy, scarcely projecting, its labellar lobes broad, ovate, quite as long as base. Legs with the fine hairs on femora, especially in 3, well developed; middle femora with 1 spine in front; hind ones with 2 spines in apical outer lower aspect and at least 1 longish spine apically above; basal joint of front tarsi in  $\mathcal{L}$  with a few longish spicules below apically. Hypopygium of 3 (text-fig. 52, b) showing a side view and a dorsal view of right beaked apical joint; outer apical angles of basal parts slightly projecting; dorsum of beaked apical joints with only very fine hair; basal strut shaped as shown, its hind margin darker, more chitinized.

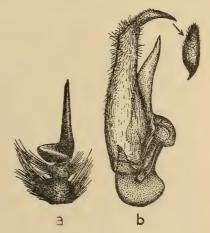
From a 3 and a 9 in the South African Museum.

Length of body: about  $5\frac{1}{2}$ -6 mm.

Length of wing: about 6-7 mm.

Locality. Swaziland: Mbabane Hlatikulu (Lawrence, Jan. 1939) (holotype). Eastern Transvaal: Nelspruit, near Barberton (Lawrence, Jan. 1939) (allotype).

Differs from *heterocoma* chiefly in having the base of antennal joint 3 more golf-driver-club-shaped, a darker infusion anteriorly in wings, darker veins, narrower axillary lobe, darker squamae and brownish halteral knobs. From the ♀ of *matabeleënsis* the ♀-allotype differs in having a more intense and darker infuscation in wings, darker squamae, brownish halteral knobs, darker tibiae, slightly deeper golden scaling above and a slightly longer slender part of antennal joint 3.



Text-fig. 52. (a) Right antenna of & Lomatia lawrencei n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of & of same species.

#### Lomatia natalicola n. sp.

A Q-specimen in the collections before me resembles the Q of lawrencei so closely that it may almost be considered as a variety of it. It, however, differs in certain characters which appear to be of specific value. The following characters seem to distinguish it from lawrencei: Vestiture with distinctly more numerous black hairs on antennae below, with more numerous black hairs on each side of frons anteriorly and without any trace of black, intermixed hairs submedially on each side across hind margin of tergite 1; bands of golden scaling on abdomen distinctly narrower and even on sides of tergites not occupying at least apical halves of hind margins as in lawrencei. Head with the interocular space on vertex in relation to ocellar tubercle comparatively broader, a little more than 2, nearly 3, times distance between outer margins of posterior ocelli, the ocellar tubercle relatively smaller; slender part of antennal joint 3 relatively shorter in relation to broadened golf-driver-clubshaped base, scarcely more than twice length of base. Wings with the brownish infusion in anterior part less intense; base of vein between submarginal cells tending to bend more at right angles and to have a distinct, short stump at the bend; squamae distinctly paler, more dirty yellowish, not brownish. Legs with the tibiae at least slightly paler, more brownish; basal joint of front tarsi with more numerous, more distinct, longish, bristle-like spicules below.

From a Q in the British Museum. Length of body: about 5 mm. Length of wing: about  $5\frac{1}{2}$  mm.

Locality: Natal: Weenen (Thomasset, March 1924).

#### GROUP II

Representatives of this second group differ from those placed in Group I in having a distinctly and comparatively longer and distinctly more slender proboscis (cf. text-fig. 53) of which the apical part, or its labellar lobes, usually project distinctly or even considerably beyond apex of buccal cavity or to at least level of apices of first antennal joints and of which the labellar lobes are distinctly narrower, more elongate and pointed apically and only rarely broadish and, if so, always much, or considerably, shorter than basal part of proboscis and with both the latter and the labellar lobes without any or with much finer, indistinct, or at least less coarse, spinules below. The face too in members of this group usually appears more subconical or prominent apically when viewed from the side.

#### Section 1

Species with the wings more extensively infuscated or dimidiately infuscated to a variable extent and usually with spot-like infusions on the cross veins.

## Lomatia infuscata Bezz.

(Bezzi, p. 114, Ann. S. Afr. Mus., xviii, 1921.)

The unique Q-type on which the description of this species is based, is in the South African Museum. As was stated under acutangula var. transvaalensis, Bezzi confused infuscata with two PP of this variety in the British Museum (p. 145, The Bombyliidae of the Ethiopian Region, 1924). The chief characters of infuscata s. str., as based on the type-specimen, are as follows:

Body black; antennal joint 3, labellar lobes of proboscis and legs tending to be more toffee- or castaneous brownish. Vestiture with the hair on front part of frons, outer lower parts of antennae, sides of face and on genae gleaming golden yellowish; that on basal part of frons, antennae above and densely on antennal joint I below black; hair on thorax and abdomen predominantly deep golden yellowish, even that on pleurae not visibly paler than above; prealar, postalar and scutellar bristles yellowish (two prealar bristles on right side in type however black); distinct, intermixed, black, bristly hairs also present on sides of tergites 3-7, across hind margin of 7 and even 1 or 2 on sides apically of 2; scaling on body above, especially across hind margins of tergites, golden yellow; rest of scaling on abdomen above black; flattened scaling on legs dull yellowish whitish to creamy on upper parts of femora, gleaming dark brownish or blackish on tibiae, especially hind ones. Wings tinged brownish throughout, the axillary lobe being the less tinted, darker, more coffee-brownish anteriorly at base, in costal cell, marginal, greater part of first submarginal and entire first basal cells, becoming less dark towards apex and hind margin; surface rather shining and iridescent; veins chocolate brownish and with a tendency for general infusion to be also darker along course of veins; basal comb not well developed; first posterior cell only very slightly narrowed

apically; discoidal cell rather elongate, very much longer than first posterior cell, its apex acute; middle cross vein at a little more than apical fourth of discoidal cell; axillary lobe narrowish and alula much reduced; squamae opaquely brownish, fringed with yellowish hairs; halteres yellowish, their knobs pale yellowish. Head with the interocular space on vertex in 2 about 2 times distance between outer margins of posterior ocelli; from subfoveately depressed anteriorly, the yellowish hair occupying most of depression; face somewhat, but distinctly, convexly raised medially; antennal joint 3 gradually broadened basally, the base bulbshaped or club-like; proboscis (text-fig. 53) about 2 mm. long, projecting a good distance beyond buccal cavity, slender, its labellar lobes (L) elongate, narrowish and pointed apically, but very much shorter than basal part, the Text-fig. 53. Side and latter more or less longitudinally striate, without visible or conspicuous spinules. Legs with 2 spines on lower outer



ventral views of proboscis of ♀ Lomatia infuscata Bezz.

apical part and 2 apical ones above on hind femora; basal joint of front tarsi with longish, bristle-like spicules below in apical part, these however considerably shorter than joint itself.

Length of body: about 10 mm. Length of wing: about 11 mm.

Locality: Natal: Pinetown (Bowker, June 1883).

Easily recognized by its shining brownishly, more or less uniformly, tinged wings and golden yellowish hair.

## Lomatia brunnitincta n. sp.

Body black; labellar lobes of proboscis and sometimes tibiae tending to be more brownish or dark castaneous brownish. Vestiture with the hair on front part of frons, numerous intermixed ones on antennal joint I below, that on sides of face and on genae whitish, straw-coloured to straw-coloured yellowish; hair on basal part of frons, antennae above and numerous intermixed ones or tufts on antennae below black; hair on thorax gleaming straw-coloured whitish or yellowish on sides in front of wings, more sericeous whitish on pleurae; prealar, postalar and scutellar bristles pale yellowish to pale reddish yellowish; hair discally on abdomen above sericeous whitish, that on sides of tergite I whitish; dense hair on sides of tergites 2-4 sometimes more sericeous yellowish in certain lights; tufts on sides of tergites 5-8 and hairs across hind margin of 8 black; hairs on venter predominantly sericeous whitish; pale scaling on body above gleaming pale sericeous yellowish to pale brassy yellowish, arranged as narrowish bands across hind margins of tergites, but more evident on sides; scaling on sides of head sericeous or silvery whitish; scaling on legs mainly whitish, that on outer apical part of femora especially hind ones, and on lower parts of tibiae dark or greyish brownish. Wings tinged brownish or faintly reddish brownish throughout, the base and costal cell however more subopaquely yellowish and basal halves of marginal and first submarginal cells and entire first basal cell more distinctly darker brownish, but with these darker parts imperceptibly grading into the less darkly tinged parts; veins dark reddish brown, becoming slightly paler towards base; basal comb rudimentary; first posterior cell slightly narrowed apically; middle cross vein at about apical fourth or a little less of discoidal cell; the latter acute apically; axillary lobe narrow and alula much reduced; squamae subopaquely whitish, yellowishbordered, fringed with whitish hairs; halteres pale yellowish, their knobs very pale. Head with the interocular space on vertex in 3 as broad as tubercle, but in front of latter a little narrower than tubercle; frons shallowly depressed anteriorly, the pale hairs anteriorly occupying most of this depression; face medially not distinctly convexly raised; antennae (text-fig. 54, a) with joint 3 broadened club-like basally, slightly more rapidly below; proboscis projecting much beyond buccal cavity, about 1-2 mm. long, slender, its labellar lobes short, ovate and broadish as in species placed in Group I, but considerably

shorter than shining basal part and with distinct spinules present only on labella. Legs with 2 or 3 spines on outer medial part of middle femora; hind ones with about 5-7 spines on outer lower part from just before middle, with 2 or 3 apical ones above and numerous, somewhat irregularly disposed spinelets

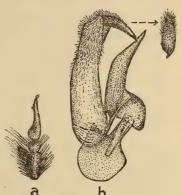
on outer upper aspect. Hypopygium (text-fig. 54, b) with the outer apical angle of basal parts not very prominently projecting.

From 3 33 (type in the Transvaal Museum).

Length of body: about  $7\frac{1}{2}-9\frac{1}{2}$  mm. Length of wing: about  $7-9\frac{1}{2}$  mm.

Locality: Transvaal: Rustenburg (Jenkins, Dec. 1908) (type); Pretoria (Swierstra, 21 Nov. 1915); and I specimen without locality label, but probably also from Pretoria.

From *infuscata*, which this species superficially resembles, it may at once be distinguished by the paler, more straw-coloured to whitish hair, black tufts which are present only on sides of tergites 5–7, not distinctly convex face, shorter, more ovate and broadish labellar lobes and the more numerous spines on hind femora.



TEXT-FIG. 54. (a) Right antenna of 3 Lomatia brunnitincta n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of 3 of same species.

## Lomatia fucatipennis n. sp.

Body black; apices of third antennal joints yellowish; proboscis and legs very dark blackish brown, the tibiae scarcely paler than femora. Vestiture with the hair on almost entire frons, numerous ones on ocellar tubercle, that on antennae below, sides of face and on genae sericeous whitish; some hairs on vertex, a few intermixed ones at base of frons and those on antennae above black; hair on body above predominantly pale sericeous yellowish to yellowish, that on pleurae, especially mesopleuron, and on sides of abdomen in basal part appearing more whitish; three prealar bristles and dense, conspicuous, shaggy tufts on sides of tergites 2-7 black; scaling on thorax above brassy yellowish to pale golden; that on abdomen above composed of sericeous yellowish and black ones, the former concentrated as bands across hind margins of tergites, denser and broader across 1 and on sides of others; scaling on venter gleaming more whitish; that on legs greyish whitish, appearing more greyish yellowish on upper surfaces of femora and on tibiae in certain lights. Wings tinged pale yellowish brownish or yellowish greyish throughout, the anterior costal half, including base, alula, costal cell, more than basal halves of marginal and first submarginal cells, entire first basal cell, however, distinctly darker yellowish brownish; veins brown; basal comb reduced; first posterior cell slightly narrowed apically, much shorter than discoidal cell; the latter subtruncate apically; middle cross vein at a little less than apical fifth to half-way between apical fifth and apical sixth of discoidal cell; axillary lobe and alula normally reduced for this genus, the former narrowish; squamae opaquely dirty whitish, dark-bordered, fringed with white hairs; knobs of halteres very pale yellowish. Head with the interocular space on vertex in  $\varphi$  a little less than 2 times distance between outer margins of posterior ocelli; frons depressed anteriorly; face convex medially; antennal joint 3 rather long, broadened bulb-like basally, slightly more rapidly below, its slender part longish, almost 3 times as long as base; proboscis longish, about 3 mm. long, projecting much beyond buccal cavity and antennae, not visibly spinulated, its labellar lobes elongate, narrow and pointed apically. Legs with 3 or 4 spines anteriorly on middle femora; hind ones with about 4 spines from about middle to apex on outer lower part and at least 1 stoutish subapical one on outer upper aspect; basal joint of front tarsi in  $\varphi$  without any longish spicules below.

From a Q in the Transvaal Museum.

Length of body: about 8 mm. Length of wing: about 9 mm.

Locality: Transvaal: Woodbine Ville (Swierstra, Dec. 1914).

Easily recognized by its uniformly dusky wings, predominantly whitish hair on head, three black prealar bristles, dense black tufts on sides of abdomen and longish proboscis. It can only be confused with  $\mathcal{P}$  of *pulchriceps* Lw. and some varieties of it, but may at once be distinguished by the predominantly white hair on head, absence of black hair on antennae below, more narrowed first posterior cell, more numerous spines on femora and absence of longish, bristly spicules on basal joint of front tarsi below. From *brunnitincta* it differs in having black prealar bristles, whitish hair on antennae below, black tufts also on sides of tergites 2 and 3, and a longer proboscis and much longer labella.

# Lomatia pictipennis (Wied.)

(Wiedemann, p. 302, Aussereurop. Zweifl. Ins., i, 1828, as Anthrax; Macquart, p. 62, Dipt. Exot., ii, 1840, as Anthrax; Loew, p. 205 and tab. ii, fig. 12, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 113, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 145, The Bombyliidae of the Ethiopian Region, 1924.)

(Syn. = centralis Macquart (nec tab. xiv, fig. 2), p. 82, Dipt. Exot., ii, 1840, as Anisotamia.)

(Syn. = aurata Macquart, p. 111, Dipt. Exot., Suppl. i, 1846, as Anthrax.) (Syn. = fasciolaris Walker, p. 144, Trans. Ent. Soc. Lond., iv, 1857.)

A very characteristic South African species which, on account of its characteristic and striking wing-pattern, cannot be confused with any other species. It is characterized as follows:

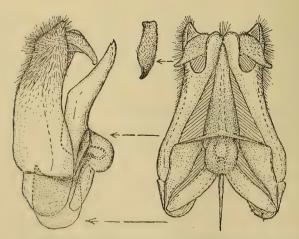
Body mainly black; hind margins of sternites rather conspicuously pallid or whitish; proboscis castaneous to dark brownish; tibiae (when denuded) also

more or less castaneous to dark reddish brownish. Vestiture with the hair on greater part or entire frons and antennae above and below sericeous yellowish to deep golden yellowish, that on sides of face and on genae more sericeous whitish to pale sericeous yellowish; hairs on ocellar tubercle in both sexes and at base of frons in 3 black; hair on body above predominantly golden yellowish to deep yellowish, being slightly deeper yellowish in front of wings on each side and very deep golden, orange or even reddish golden on sides of tergites 3-6; prealar, postalar and scutellar bristles yellowish to reddish yellow; hair on pleurae and on venter gleaming whitish to sericeous whitish, contrasting much with that on body above; hair on abdomen above with a few intermixed black ones on sides of tergite 6 and a fairly dense tuft on sides of 7 and bristly ones across hind margin of 8 in 3 black, but without any, or with only a few, intermixed black ones on sides of 6 in 2 though numerous black ones are also present across hind margin of last tergite (7) in \(\tilde{\pi}\); fine, hair-like scaling on body above golden yellowish to deep reddish golden, arranged in broad bands across hind margins of tergites, but occupying almost entire tergal surface on sides; rest of abdomen above with dull black hair-like scaling; scaling on sides of head behind eyes more sericeous yellowish to whitish; scaling on venter sericeous whitish to silvery whitish; flattened scaling on legs mainly greyish whitish, but tinted slightly more dull yellowish whitish to distinctly yellowish on outer upper parts of femora and upper parts of tibiae, especially hind ones. Wings very characteristically infuscated (more or less as depicted by Loew in loc. cit., tab. fig. 12), with a pattern consisting of three more or less well defined transverse bands of which the broad preapical one and somewhat broken-up basal one are dark brownish, chocolate-brownish to purplish brownish and the broad medial one between them is contrastingly subopaquely yellowish or yellowish whitish; the former or broad, dark, preapical band extending broadly across and including almost the apical half of marginal cell to at least apical half of first posterior cell, leaving only extreme apical part of marginal cell, apical fourth of first submarginal cell, more than apical half of second submarginal cell and sometimes extreme apex of first posterior cell clear and more or less subopaquely whitish; the broken-up dark basal band evident as a dark infusion in basal part of first basal cell, in anterior apical part of second basal cell and in apical half of anal cell and along veins between the latter and the axillary and fourth posterior cells in this region; the pale medial band between these two extending broadly across basal parts of marginal and first submarginal cells, middle part of first basal cell, more than basal half of discoidal cell to bases of third and fourth posterior cells and also continued in costal cell to include the base and greater part of second basal cell and also distinctly continued along course of third vein to near its end; axillary lobe and basal half of anal cell also more or less clear greyish hyaline and with the hind border also tending to be more or less greyish; middle parts of cells in the dark preapical band sometimes showing clearer areas to a variable extent; infuscation on apical cross vein of second basal cell spot-like; first main vein and parts of other veins in the yellowish parts reddish to reddish brown, the rest of the veins darker or blackish brown; basal comb poorly developed; first posterior cell distinctly narrowed apically; discoidal cell subacute to acute apically; middle cross vein at about, or a little more or a little less than, apical fourth of discoidal cell; axillary lobe broader than anal cell and alula fairly well developed; squamae opaquely whitish, fringed with dense, creamy to yellowish hairs; knobs of halteres very pale, almost whitish. *Head* with the interocular space on vertex in ♂ as broad as ocellar tubercle, but a little narrower for some distance infront of tubercle; interocular space on vertex in ♀ about,



TEXT-FIG. 55.
Right antenna
of & Lomatia
pictipennis Wied.
(from inner
side).

or a little less than, 2 times distance between outer margins of posterior ocelli; from not or scarcely depressed anteriorly and if so then only in Q, its hair dense anteriorly, leaving only middle line bare; face not or only very feebly convex medially; antennae (text-fig. 55) with joint 3 broadened bulb- or club-like basally and more or less apical half very slender and styliform, usually more slender than in most species; proboscis projecting distinctly beyond buccal cavity to at least about level of antennal joints 1 and 2, its labellar lobes elongate, narrow and pointed apically. Legs without or with 1 short spine on anterior medial part and sometimes a few minute spinelets on outer upper part of front femora; middle femora usually with about 3 conspicuous spines on anterior lower part; hind ones with about 3-6 spines on outer lower part from about, or just before, middle to apex, numerous irregularly disposed spinelets on outer upper part, 3 or 4 longish spines apically above and usually with 1 longish spine on inner apical part; basal joint of front tarsi in Q with longer and more bristle-like spicules below towards apex, but with these considerably shorter than joint itself. Hypopygium of 3 (text-fig. 56) with the outer apical angle of basal



Text-fig. 56. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of & Lomatia pictipennis Wied.

parts distinctly angularly projecting; beaked apical joints shaped as shown in dorsal view between the two figures; basal strut rather broad, more or less chopper-shaped.

In the Commonwealth Institute and in the British, Albany, Natal, South African and Transvaal Museums.

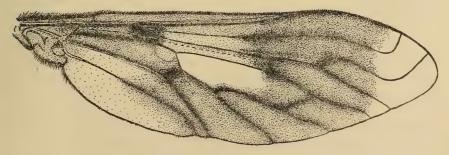
Length of body: about  $6\frac{1}{2}$ -13 mm. Length of wing: about 7-15 mm.

Locality: Eastern Cape, Natal, Zululand, Orange Free State, Transvaal, Swaziland, and Southern Rhodesia.

This species is very variable in size and also in the intensity of the pattern on the wings. Apart from the characteristic wing-pattern, it can also be distinguished from other yellow-haired species by the shape of the third antennal joint, absence of extensive black hairs on basal part of frons and the presence of black hairs only on sides of last two tergites. According to Macquart's descriptions both Anisotamia centralis (p. 82, loc. cit.) and Anthrax aurata (p. 111, loc. cit.) are without doubt synonyms of pictipennis. There is also a strong suspicion that Walker's species fasciolaris from Natal (p. 144, loc. cit.) is synonymous with Wiedemann's species.

## Lomatia phaenostigma n. sp.

Body black; tibiae mainly yellowish, pale yellowish brownish to reddish brown, very much paler than dark or blackish brown femora and dark tarsi. Vestiture with the hair on at least front half of frons, antennae below, sides of face and on genae whitish to sericeous whitish; hairs on basal part of frons, ocellar tubercle and on antennae above black; hair on thorax above pale straw-coloured yellowish, that in front of wings showing more sericeous yellowish; prealar, postalar and scutellar bristles pale yellowish to reddish yellow; hair on pleurae, venter and to a certain extent on sides of tergites, especially 1−3, conspicuously sericeous or snow-whitish, but with blackish brown to black, intermixed bristly ones or tufts on sides of 3−7 (or 8) and also across hind margin of last tergite; fine hairs across hind margin of last tergite in ♀ sericeous yellowish; pale scaling on body above sericeous yellowish to pale brassy



Text-fig. 57. Wing of \$\varphi\$ Lomatia phaenostigma n. sp.

yellowish in ♀, but paler in ♂, that on venter silvery whitish; flattened scaling on femora predominantly cretaceous whitish, becoming dull yellowish along outer upper parts and on tibiae. Wings (text-fig. 57) rather elongate, more pointed apically in  $\beta$  than in Q, with a characteristic pattern, consisting of a smoky brownish to dark blackish brown or even slightly purplish brown infuscation more or less divided into a broadish, transverse, preapical band and a transverse basal band by a transverse, abbreviated, medial, paler, subopaquely yellowish to yellowish whitish band; the darkly infuscated basal band in Q well developed, extending from base of first basal cell across entire second basal cell to include apical half of anal cell, entire fourth posterior cell and continuous along hind border across posterior cells and apical part of discoidal cell, but in 3 ill-defined and only distinctly represented in basal half of first basal cell and very faintly or not at all in apical part of anal cell and in fourth posterior cell, second basal cell in 3 being clearer than in 2 and with the infusion across posterior cells in 3 also less extensive and sometimes fainter; second or preapical dark band in ♀ broad, but narrower and less extensive in ♂; apical part of wings clear, with a slight subopaquely whitish sheen in certain lights, the area less extensive in 2, only extreme apex of marginal cell, a little less than apical fourth of first submarginal cell, more than apical half of second submarginal cell and extreme apex of first posterior cell being clear, whereas in 3 more or less apical third of marginal and first submarginal cells, entire second submarginal and greater parts of first and second posterior cells sometimes clear like greater part of second basal cell and anal and axillary cells (in Q only axillary lobe and basal half of anal cell clear); the subopaquely yellowish, abbreviated, medial band between the darker bands continuous with the subopaquely yellowish costal cell and base, becoming paler in discoidal cell where it forms an elongate, clear (in Q almost subopaquely whitish), conspicuous eye-spot in more or less basal two-thirds of discoidal cell; a small greyish white spot apically in second basal cell also present, especially in  $\mathcal{Q}$ ; veins dark blackish brown, slightly paler in the paler medial parts and with the dark infusions in wings sometimes appearing darker along veins; basal comb very poorly developed; first posterior cell much narrowed apically; second vein sometimes very much recurved apically in 3; middle cross vein usually at about between apical third to fourth or fifth of discoidal cell; the latter acute apically; squamae opaquely whitish, fringed with white hairs; knobs of halteres very pale. Head with the interocular space on vertex in 3 as broad as ocellar tubercle, narrower in front of latter, in 2 about 2 or a little more times distance between outer margins of posterior ocelli; from shallowly depressed anteriorly in Q, its hair occupying most of this depression; face not convexly raised medially; antennal joint 3 broadened club- or bulb-like basally; proboscis projecting beyond buccal cavity to at least level of base of antennal joint 3, shining, somewhat obliquely striate, its labellar lobes elongate, narrow, pointed apically and with distinct fine hairs below on basal part; palps very short, very much shorter than antennal joint 3. Legs with more numerous spines on femora in 3 and stouter and more numerous spicules

on tibiae in 3; front femora with about 6 or 7 irregularly disposed spines on anterior lower part and 3 or 4 on posterior or outer part in 3, without any or with only a few minute spinelets in \( \rightarrow \); middle femora in \( \frac{1}{2} \) with about 9-10 very well developed, longish spines on anterior lower part and about 7-8 on posterior apical part and with only about 2 or 3 medially in front in Q; hind ones with about Q-10 spines on lower outer part in 3 and 4 or 5 in 2 from before middle to apex, with 2-4 apical spines above and some irregularly disposed spinelets above in both sexes; basal joint of front tarsi in Q with bristle-like spicules below in apical part which are however much shorter than joint itself. Hypopygium of 3 (text-fig. 58) with the outer apical angle of basal parts rather prominent and hairs on latter confined to apical part; beaked apical joints narrowish, appearing elongate; lateral struts rather broad, tongue-like; basal strut with a transverse ledge basally when viewed from above or below.



TEXT-FIG. 58.
Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia phaenostigma n. sp.

From 1 3 and 2 99 (types and paratype in the South African Museum).

Length of body: about  $9\frac{1}{2}$ -11 mm. Length of wing: about 11-13 mm.

Locality: Moordenaars Karoo in Laingsburg Div. (Mus. Exp., March 1937) (allotype). Great Karoo: Murraysburg Dist. (Mus. Exp., March 1931)

# Lomatia mesoleuca n. sp.

This species is very close to *phaenostigma*, but differs from the latter in the following characters:



(holotype).

TEXT-FIG. 59. Side view of hypopy-gium and dorsal view of right beaked apical joint of d Lomatia mesoleuca n. sp.

Vestiture with the hair on antennae below predominantly or entirely black; that on thorax above and on sides of abdomen tinted more distinctly sericeous yellowish and also with black intermixed hairs on sides of tergite 2 in addition to those on sides of 3-7. Wings almost without a distinct, subopaquely yellowish, medial, transverse band, the anterior border and costal cell being unicolorous with the preapical band and infusion posteriorly across posterior cells, with only the clear, elongate eye-spot in discoidal cell being conspicuous in middle of wings; second basal cell, anal and axillary cells and even fourth posterior cell in both sexes also more or less clear as in 3 of phaenostigma; middle cross vein varying in position from a little more than apical fifth to apical fifth and apical sixth of discoidal cell; the latter usually less sharply acute apically; apical part of second vein tending to be more constantly recurved apically. Legs with about 2-6 spines on outer lower part and about 2-5 on

posterior lower part and some small spinelets above on front femora; middle ones with about 5–8 spines on anterior lower part and 2–5 on posterior part; hind femora with about 5–8 on lower outer part. Hypopygium of 3 as shown in outline (text-fig. 59), differs from that of phaenostigma in having relatively broader, more leaf-shaped beaked apical joints and in having the lateral struts distinctly longer, narrower and not tongue-shaped.

From 6 33 and 5 99 (types and paratypes in the South African Museum). Length of body: about 10–14 mm.

Length of wing: about 10-15\frac{1}{2} mm.

Locality: Namaqualand: Bowesdorp (Mus. Exp., Sept. 1941) (types); Kamieskroon (Mus. Exp., Sept. 1930); Kamieskroon-Springbok (Mus. Exp., Oct. 1939); Klip Vlei near Garies (Mus. Exp., Nov. 1931); Outiep near Garies (du Toit, Sept. 1953); O'Okiep (Lightfoot, Sept. 1890).

This like the preceding species is easily recognized by the pattern in the wings and especially the elongate eye-spot in the discoidal cell.

# Lomatia longitudinalis Lw.

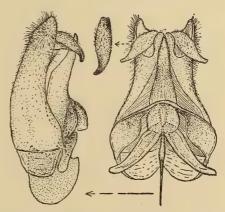
(Loew, p. 204 and tab. ii, fig. 11, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 113, Ann. S. Afr. Mus., xviii, 1921.)

This species, as based on two 33 in the South African Museum, is characterized as follows:

Body mainly black; rather broad hind margins of sternites pallid; proboscis dark castaneous brownish; legs mainly yellowish or very pale yellowish brownish, only extreme apices of femora and apical parts of tarsi dark or blackish. Vestiture with hair on ocellar tubercle, base of frons, antennae above and numerous intermixed ones below blackish brown to black; that on greater part of frons whitish to sericeous yellowish and that on sides of face, on genae and intermixed ones on antennae below gleaming sericeous whitish; hair on thorax above sericeous yellowish to pale golden yellowish, that on sides in front of wings and in mesopleural tuft deeper yellowish to even more reddish golden; prealar, postalar and scutellar bristles yellowish to reddish yellow; hair on pleurae, pectus and venter more contrastingly whitish to sericeous whitish; that on abdomen above pale sericeous yellowish, that on sides basally sericeous whitish to yellowish, but sometimes even distinctly golden yellowish, becoming even deeper yellowish posteriorly; some intermixed, bristly hairs on sides of tergites 6 and 7 and across hind margin of 8 black; fine, pale, hair-like scaling on body above sericeous yellowish to golden yellowish, that across hind margins of tergites more in form of broadish bands; scaling on venter whitish; scaling on legs whitish on hinder and outer lower surfaces, more creamy yellowish on upper parts of femora and on tibiae. Wings with a yellowish brownish infusion (depicted by Loew in tab. ii, fig. 11, loc. cit.) which occupies base, costal cell, more or less basal three-quarters of marginal cell, basal two-thirds of first submarginal cell, entire first basal cell and extending as a slightly less brownish,

more yellowish greyish, infusion across all the posterior cells to include apical parts of anal and axillary cells, leaving the apical part, greater part of discoidal cell, second basal cell, basal half of anal cell and greater part of axillary lobe clearer, more greyish hyaline, but with a slightly whitish subopacity; the darker or brownish infused parts imperceptibly merging into clearer apical part, also more evident along course of veins posteriorly; alular part and basal halves of marginal and first submarginal cells appearing slightly more subopaquely yellowish in certain lights; first, third and fifth main veins yellowish reddish, the rest more or less reddish brown, becoming darker in apical and hinder parts; basal comb moderately developed; first posterior cell shortish, much narrowed apically, more or less spindle-shaped; middle cross vein at

about between apical fifth and sixth of discoidal cell; the latter elongate, subacute apically; axillary lobe broad, well developed, broadly rounded posteriorly; alula fairly well developed; squamae opaquely whitish, fringed with white hairs; knobs of halteres almost white. Head with the space on vertex in 3 as wide as ocellar tubercle and in front of latter narrow, only about as broad as front part of tubercle or a little wider than front ocellus; frons only very shallowly or scarcely transversely depressed anteriorly, its hair leaving a medial triangular space bare; face not distinctly convexly raised medi-



Text-fig. 60. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of & Lomatia longitudinalis Lw.

ally; antennal joint 3 bulb- or club-like basally, at least its apical half slender; proboscis long, projecting beyond buccal cavity to level of antennal joint 2, its labellar lobes elongate, narrow and pointed apically; palps subequal in length to antennal joint 3. Legs with about 3–5 spines on medial lower outer part of front femora; middle ones with about 5–7 longish and short spines on lower anterior part; hind femora with about 7–9 shortish spines along lower outer part from near base to apex, with 3 or 4 on inner lower apical part, with 2–4 apical ones above and also with irregularly disposed spinelets along upper outer part. Hypopygium (text-fig. 60) with the outer apical angles of basal parts prominent, angularly projecting; beaked apical joints shaped as shown in figures.

In the South African Museum.

Length of body: about 14-15 mm. Length of wing: about 15-16 mm.

Locality: Western Cape Province and also Eastern Cape Province (Loew).

Recognized by its entirely yellowish legs, yellowish brownish infuscated wings in which the discoidal, second basal and basal half of anal cells are more or less clear and the presence of only a few intermixed black hairs on last few tergites.

# Lomatia bevisii n. sp.

A large and bulky species very near *longitudinalis* in its type of wing-pattern, but differing in the following respects:

Legs with the femora much darker, dark reddish or castaneous brownish to blackish brown; tibiae, though much paler than femora, more reddish brownish than yellowish. Vestiture with the hairs on ocellar tubercle predominantly pale sericeous yellowish; hair on frons, face, genae and also antennae above and below very pale sericeous yellowish or whitish; that on thorax above and on sides much paler, paler sericeous yellowish or more distinctly sericeous whitish, not so obviously contrasting with the more distinctly sericeous whitish ones on pleurae and venter; hair on abdomen and on sides of tergites also much paler, gleaming very pale sericeous yellowish, with slightly more numerous black, intermixed, bristly ones on sides of tergites 5-8 and not only on sides of 6-8 as in longitudinalis. Wings distinctly broader, the infuscated parts however similar in pattern, but slightly less extensive, also distinctly paler, more yellowish, the clear apical part more hyaline and slightly more extensive, the greater part of first posterior cell and apical parts of the other posterior cells along hind border being clear like greater part of discoidal, second basal, anal and axillary cells; veins paler throughout; first posterior cell, though also narrowed apically, much less so; discoidal cell relatively longer, more acute apically, the vein between it and second posterior cell very much longer, S-curved



Text-Fig. 61. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia bevisii n. sp.

and not straight; middle cross vein at about a little less than apical fifth of discoidal cell. Head with antennal joint 3 relatively longer, its slender part also relatively longer and more distinctly yellowish apically; proboscis with some distinct fine hairs below and more distinct spinules on labellar lobes. Hypopygium as shown in outline in text-fig. 61, characterized by the presence of much and fairly long hairs towards apical parts of basal parts, the inner apical angles of latter distinctly less produced than in longitudinalis; lateral struts relatively shorter and basal strut (side view) differently shaped.

From a 3 in the South African Museum.

Length of body: about 16½ mm. Length of wing: about 19½ mm.

Locality: Natal: Braemar (Bevis, 23 March 1927).

# Lomatia apicalis n. sp.

Body black; femora very dark or black, the tibiae slightly more yellowish brownish. Vestiture with the hair

on basal half of frons or, in 3, to a little beyond middle of frons, those on antennae above and densely on their inner lower aspect, sometimes a few intermixed ones in collar anteriorly, dense ones on sides of tergites 5-7 (or 8) and a few across middle of hind margin of last sternite in 2 black; rest of hair on body very pale sericeous whitish or yellowish, that on sides of frons in front, on sides of face, pleurae, sides of tergite 1 and base of venter contrastingly sericeous whitish; hair on sides of thorax and in mesopleural tuft, on sides of abdomen and also intermixed ones among posterior black tufts, on body above and on hinder part of venter appearing more pale sericeous yellowish in certain lights; curled and hair-like scaling on body above, across hind margins of tergites and on venter very pale sericeous yellowish in ♀, more whitish or silvery in ♂; scaling on legs greyish whitish to white, more dull yellowish on upper and outer surfaces. Wings rather darkly and extensively infuscated yellowish brownish to brown, the infuscation extending apically to much beyond end of costal cell and cubital fork, more or less irregularly straight across to apex of first posterior cell, leaving the apical part of wings uninfuscated and subopaquely whitish; a little more than basal two-thirds of discoidal cell contrastingly uninfuscated and subopaquely yellowish; apex of second basal cell, anal and axillary cells, greater part of fourth posterior cell clearer and more or less middle parts of the other posterior cells also clearer; alular part yellowish; veins brownish; discoidal cell narrowish, elongate, much longer than either first or fourth posterior cells, its apical vein comparatively short, substraight or only feebly S-curved; second and third posterior cells subequal or equal in width apically; axillary lobe narrowish; squamae whitish, white-fringed; knobs of halteres pale ivory yellowish. Head with the interocular space in 3 at narrowest part in front of ocellar tubercle a little narrower than, or about as broad as, tubercle; space on vertex in Q nearly 2 times width of tubercle; antennal joint 3 with its stylar part slender, long, quite as long or longer than broad club-like basal part; labellar lobes of proboscis only a little shorter than basal part, elongate, pointed apically and projecting much beyond buccal cavity. Legs with 3 or 4 spines on anterior middle part of middle femora and 5 or 6 on outer lower part of hind ones as well as some spines above apically; basal joint of front tarsi in Q without longish, bristle-like spicules below.

From 1 3 and 2 99 (types in the South African Museum and paratype in Durban Museum).

Length of body: about 9-12 mm. Length of wing: about 11-14 mm.

Locality: Southern Rhodesia: Zimbabwe (Bevis, 28 April 1948) (types); Zimbabwe (Bevis, 29 April 1948).

Easily recognized by the darkly infuscated wings which have only the apex clear and the basal two-thirds of discoidal cell spot-like, subopaquely yellowish white. Its wing-pattern resembles that of phaenostigma, mesoleuca, longitudinalis

and related species, but more especially that of mesoleuca. From the latter it may be distinguished by having black hairs only on sides of tergites 5–7 (or 8), more black ones on antennae below, apical part of marginal cell more extensively clear, darker tibiae, etc. From longitudinalis it differs in having dark legs, a broader interocular space in front of ocellar tubercle in  $\Im$ , a more marked-off apical clear area in wings and much darker infuscation.

# Lomatia fulva n. sp.

A very characteristic, dark-winged and yellowish-haired species characterized as follows:

Body mainly dark, the integument above with slight, dull, dark bluish reflections; legs very dark blackish brown, but appearing pale, due to dense, buff vellowish or ochreous scaling. Vestiture with the hair on anterior half of frons in  $\beta$ , entire from in  $\mathcal{Q}$ , densely on antennae below and sides of face in  $\mathcal{Q}$ , intermixed hairs among black ones on antennae below in 3, dense hair on entire thorax (including prealar, postalar and scutellar bristles) and abdomen above and in mesopleural and propleural tufts golden yellow to deep golden, that on sides of abdomen posteriorly or posterior half and sometimes to a lesser extent in upper anterior part of mesopleural tuft more orange fulvous or deep orange golden; hair on sides of face in 3, on genal part in both sexes, in lower hinder part of mesopleural tuft, on prosternal part, lower parts of pleurae, small metapleural tuft, on coxae, hairs on femora and on venter whitish, becoming whiter on coxae and venter; some hairs on antennae above in Q, those on antennae above and very dense and tuft-like ones below in 3, that on basal half of frons in 3, on ocellar tubercle in both sexes, bristly hairs across hinder parts of last two tergites in ♂ and on last tergite in ♀ black; scaling on sides behind eyes pale golden; sparse, hair-like, curly scaling on thorax and scutellum above and in narrow bands across hind margins of tergites (denser and longer on sides) golden; scaling on coxae, those fairly densely across hind margins of sternites and on bases of femora below white. Wings almost entirely infuscated dark brownish or chocolate-brownish, with slight purplish brownish reflections, the costal cell and basal half of first submarginal cell more yellowish, becoming clearer or less tinged at apex of wings and in Q even subopaquely clear, the greater parts of axillary and anal cells and middle parts of posterior cells also less infuscated, clearer, with the second basal cell and basal three-quarters of discoidal cell also distinctly paler than general infuscation, more subopaquely yellowish or yellowish whitish; prediscoidal spot whitish; alula yellowish; basal comb black; veins dark reddish brown; second vein much and roundly recurved apically; first posterior cell narrowed apically, much shorter than discoidal cell; apical vein of latter slightly S-curved; squamae subopaquely whitish, yellow-fringed; knobs of halteres almost white. Head with the interocular space in front of ocellar tubercle in 3 about as broad as narrow front part of tubercle or about 1\frac{1}{2} times width of front ocellus; space on vertex in 2 a very little more than 2 times distance between outer margins of posterior

ocelli; frons slightly depressed in front, the middle of depression being free of hairs; antennal joint 3 broadened bulb-like basally, more rapidly narrowed below, ending in a long, slender part, much longer than broadened base, but in  $\Im$  slightly longer than in  $\Im$ ; proboscis projecting beyond buccal cavity, its labellar lobes elongate, a little shorter than basal part; palps a little longer than antennal joint 3. Legs with 1 or 2 small spines on inner part of front femora; middle ones with about 3–5 spines on anterior lower part; hind femora with about 4–6 spines on outer lower part, a few smaller ones on inner aspect and a few small ones in an upper outer and inner row which become longer apically; basal joint of front tarsi in  $\Im$  with some longish spicules below.

From 3 33 and 1  $\circ$  (types and paratypes in the South African Museum).

Length of body: about  $11-12\frac{1}{2}$  mm.

Length of wing: about  $11\frac{1}{2}$ -12 mm.

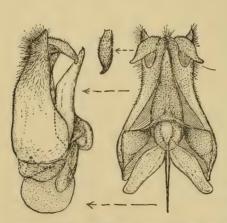
Locality: West Cape Mountains: Wit River Valley in Bain's Kloof near Wellington (Mus. Exp., Dec. 1949).

The only species among the preceding ones with which this species may be confused is *mesoleuca* which has similarly coloured wings. It, however, differs from the latter in having distinctly deeper golden hair above, no black ones on sides of abdomen, less contrasting white hair on body below, shorter bulb-like base of antennal joint 3 and an apically less recurved second vein.

# Lomatia monticola n. sp.

Body black; apical part or extreme apices of third antennal joints yellowish or yellowish brown; labella of proboscis dark piceous or reddish brown; tibiae dark, but very dark castaneous brownish to reddish brownish when denuded, the legs otherwise very dark or blackish. Vestiture with the hair on ocellar tubercle, base of frons, antennae above and in 3 and some 22 densely on inner part below black; rest of hair on frons in 3 and at extreme front of from in  $\mathcal{Q}$  sericeous whitish, the rest of pale ones on from in some  $\mathcal{Q}\mathcal{Q}$  sometimes sericeous yellowish; that on face and genae and on outer lower part of antennae sericeous whitish, but those on inner lower part of antennae in some  $\Im$  sometimes gleaming dark golden brownish; hair on thorax above and on sides in front of wings pale sericeous yellowish to pale golden in 3 to golden or even deep golden yellowish or even deep orange in some QQ, but slightly deeper yellowish in front of wings in both sexes; prealar, postalar and scutellar bristles vellowish; hair on propleurae, prosternum, in hinder and lower parts of mesopleural tuft, pleurae and venter contrastingly snow-whitish; that on abdomen above pale sericeous yellowish to golden in 3, golden to very deep golden or even fulvous orange in Q, that on sides towards posterior part deeper yellowish or orange fulvous and in 2 sometimes even reddish fulvous or very deep orange golden; distinct, black, intermixed, bristly hairs only on sides of tergites 6-8 in 3 and on sides and across hind margin of 7 in 9; scaling on body above sericeous yellowish or brassy, sometimes more golden in Q, especially on sides of

posterior tergites; scaling on venter silvery or sericeous whitish; that on legs dull grevish whitish on femora below and yellowish above, dull grevish yellowish on tibiae. Wings with an infuscation and pattern very similar to that of the mesoleuca and longitudinalis-group of species, consisting of a yellowish brownish or brownish infusion extending to opposite apex of costal cell or a little beyond it and across bases of second submarginal and first posterior cells, apical part of discoidal cell, base of second posterior cell and then across the posterior cells where it is more evident along course of the veins, leaving apical part of wings, middle apical parts of posterior cells, greater part of discoidal cell, second basal cell and the entire or greater part of anal and axillary cells clear, more hyaline; apex of wings showing a slight milky subopacity and with the infused anterior half appearing slightly more subopaquely yellowish than brownish in costal cell and basal halves of marginal and first submarginal cells; first and sixth veins more or less reddish, the rest darker reddish brown to blackish brown; basal comb moderately developed, black; first posterior cell spindle-shaped, much narrowed apically; middle cross vein at about apical fifth, or a little less or even a little more, of discoidal cell; the latter very elongate, subacute apically, its apical vein long, S-curved; axillary lobe and alula moderately developed; squamae opaquely yellowish whitish, yellowish-bordered, fringed with snowwhite hairs; knobs of halteres almost white. Head with the eyes on vertex in 3 separated by width of ocellar tubercle, but the space in front of latter very narrow, only a little broader than front ocellus or about as broad as front part of tubercle; interocular space on vertex in 2 a little more than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly in Q and in both sexes with the hair anteriorly absent from middle part; face not distinctly convex medially; antennal joint 3 bulb-shaped basally, its apical half or more slender; proboscis about 2-3 mm. long, projecting beyond buccal



TEXT-FIG. 62. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of & Lomatia monticola n. sp.

cavity to about level of base of antennal joint 3, its labellar lobes elongate, narrow, bluntly pointed apically and much longer than antennal joint 3. Legs with about 2-3 smallish spines medially on both outer lower and anterior lower parts of front femora; middle ones with about 4-9 welldeveloped spines on anterior lower part, 2 or 3 of which are very long and with 2-4 short spines on posterior lower part; hind ones with about 5-10 spines from before middle to apex on outer lower part and with a row of about 9-12 smaller, irregularly disposed ones along hinder lower part from near base and also with numerous spinelets on outer

upper surface and with 4 or 5 longer spines apically above; basal joint of front tarsi in  $\bigcirc$  with some longish, bristle-like spicules apically below. Hypopygium of  $\bigcirc$  (text-fig. 62) with the outer apical angles of basal parts angularly prominent, the hairs towards apices of basal parts tending to be conspicuous; lateral struts somewhat elongate.

From 35 33 and 28 99 (types and paratypes in the South African Museum and a paratype in the British Museum).

Length of body: about 10-14 mm. Length of wing: about 10\frac{1}{2}-14 mm.

Locality: South-western Cape mountains: upper sources of the Olifants River in the Ceres Div. (Mus. Exp., Dec. 1949) (types); Matroosberg (3,500-4,000 ft. alt.) in the Ceres Div. (Lightfoot, Jan. 1917); Ceres (Turner, Dec. 1920).

Though having a similar type of wing-infuscation and clear areas, this species differs from *longitudinalis* and *bevisii* in being slightly smaller, in having much darker tibiae, more golden yellowish or fulvous hair on body above, more contrastingly white hair in mesopleural tuft, black ones only on sides of posterior tergites and in having the clear areas in wings more vitreous hyaline. From *fulva* which it also superficially resembles in the colour of the hair it may however at once be distinguished by the distinctly less darkly infuscated wings, a larger clear apical part in wings, white hairs on frons anteriorly and in part below antennae, white squamal fringe and whiter hair on pleurae. This species has a very characteristic habit of sitting on flowers with its abdomen pointing straight up.

# Lomatia sericosoma n. sp.

A single  $\varphi$ -specimen in the South African Museum is apparently very near *monticola*, from which it however differs in the following respects:

Vestiture with the hair on frons predominantly sericeous whitish, there being much fewer black ones basally; hair on body above predominantly sericeous whitish, only very slightly tinted pale sericeous yellowish on thorax in front of wing-bases; that on sides of abdomen sericeous or snow-whitish like that on body below, with however some intermixed black hairs on sides of tergites 6 and 7; fine scaling on abdomen above more whitish; flattened scaling on legs also predominantly whitish. Wings very similarly infuscated, but longer in relation to body; middle cross vein only a little less than apical fourth of discoidal cell; the latter also acute apically, its apical vein also longish and S-curved; first posterior cell however distinctly longer, less narrowed apically; axillary lobe and alula slightly more reduced. Head with the labellar lobes of proboscis, though also narrow and pointed, distinctly and relatively shorter than in monticola and slightly shorter than antennal joint 3. Legs with fewer spines on femora, the front ones with only 1 spine in front and about 3 on outer upper apical part; middle ones with only about 4 spines on anterior lower part and

none posteriorly; hind femora with only about 7 on outer lower part and none, or only 3 or 4, in apical part on inner lower part.

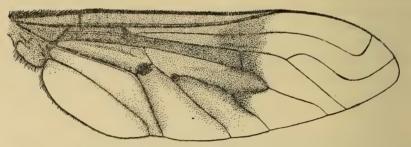
Length of body: about 11½ mm. Length of wing: about 13½ mm.

Locality: East Griqualand: Saamloop (Bell-Marley, 21 March 1932).

This Q cannot be taken as that of *bevisii*. From the d of the latter it differs in being very much smaller, in having entirely dark legs, more sericeous whitish hair on abdomen above, narrower wings, less broad axillary and alular lobes and much shorter labella.

#### Lomatia chraecoptera n. sp.

Body black; apices or apical parts on third antennal joints yellowish or yellowish brownish; proboscis dark castaneous or piceous brownish, especially labellar lobes; tibiae yellowish to yellowish brownish or even sometimes reddish brownish to dark reddish brown. Vestiture with the hair on ocellar tubercle, base of frons, antennae above and in 3 on inner lower parts of antennae black; hair on greater anterior part of frons, outer lower parts of antennae in 3 and



Text-fig. 63. Wing of & Lomatia chraecoptera n. sp.

entirely below in  $\mathfrak{P}$ , on sides of face and on genae sericeous whitish; hair on body above and on front coxae gleaming pale sericeous yellowish to creamy yellowish, sometimes appearing slightly more yellowish on sides and on front part of thorax and more whitish on sides of abdomen basally; hair on hinder part of mesopleural tuft, on pleurae and venter somewhat contrastingly sericeous whitish; thoracic and scutellar bristles entirely pale yellowish; intermixed bristly hairs or tufts on sides of tergites 5–7 (or 8) and across hind margin of last one black; scaling on body above sericeous yellowish to brassy yellowish, especially in  $\mathfrak{P}$ ; that on venter whitish; scaling on legs predominantly dull yellowish to greyish yellowish. Wings (text-fig. 63) more or less dimidiately infuscated, this subopaquely pale yellowish brownish to coffee-brownish infusion occupying more or less anterior two-thirds, including second basal and discoidal cells and extending to opposite level of apex of costal cell and then straight across to base of second posterior cell, becoming fainter in posterior cells where

it is more evident as infusions along veins; apical part of infusion, evident as an indistinct transverse band, and also entire first basal cell darker, more coffeebrownish; apical part of wings beyond infusion, including greater part of second posterior cell, axillary lobe and to a great extent anal cell and also hind border of wings, clear, vitreous hyaline; alular part subopaquely yellowish; a spot-like infusion present on apical cross vein of second basal cell and a smaller one at base of third posterior cell; veins yellowish to reddish brownish, darker in more darkly infused parts; basal comb moderately developed; first posterior cell longer than in the longitudinalis-group, distinctly narrowed apically; middle cross vein at about a very little more, or a little less, than apical fourth of discoidal cell; the latter acute apically, its apical vein substraight, slightly S-curved; axillary lobe and alula, especially in 3, fairly well developed; squamae opaquely whitish, yellowish-bordered, white-fringed; knobs of halteres very pale. Head with the interocular space on vertex in 3 as narrow as narrow ocellar tubercle and in front of latter only about as broad as front ocellus; interocular space on vertex in 2 a little more than 2 times distance between outer margins of posterior ocelli; frons slightly transversely depressed anteriorly in Q, not or scarcely in Q, the small medial area in front bare; face not convexly prominent; antennal joint 3 bulb- or onion-like basally and with

at least its apical half slender; proboscis long, projecting beyond buccal cavity to level of antennal joint 2, its labellar lobes elongate, narrow and pointed apically. Legs without any spines on front femora; middle ones with about 2-4 spines anteriorly and none posteriorly; hind femora with about 3-6 spines on outer lower part from about middle, with only 2 or 3 small ones apically on posterior lower part and about 3 or 4 apical ones above; basal joint of front tarsi in 2 without any long or conspicuous, bristle-like spicules below. Hypopygium of 3 (text-fig. 64) with rather conspicuous punctures towards apices of basal parts and also with distinct and conspicuous hairs in this region; rest of structures shaped as shown in outline.



TEXT-FIG. 64. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia chraecoptera n. sp.

From 2 33 and 4 99 (types and paratypes in

the South African Museum and a paratype in the British Museum).

Length of body: about  $8-11\frac{1}{2}$  mm. Length of wing: about  $9\frac{1}{2}-13$  mm.

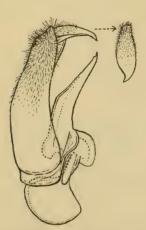
Locality: Zululand: Mfongosi (Jones, March 1916) (types); Mfongosi (Jones, April-May 1934). Natal: Weenen (Thomasset, April 1924).

Easily recognized by the yellowish brownish infusion in wings which occupies more or less the anterior basal two-thirds, including second basal and discoidal cells.

#### Lomatia hemichroa n. sp.

Very closely resembles *chraecoptera* from which it may be distinguished as follows:

Wings comparatively shorter, broader, with almost an identical type of infuscation, this yellowish brown infusion occupying more or less the same area, though appearing slightly less in longitudinal extent owing to the relatively broader and shorter wings, being also sharply marked off from apical hyaline part, but distinctly more uniform in colour; first basal cell and apical part, from apex of costal cell straight across to hind border, not being distinctly darker than rest of infusion as in chraecoptera; the infusion, though becoming fainter posteriorly, also occupying third and fourth posterior cells and anal and axillary cells, these latter cells thus being distinctly more tinged than in case of chraecoptera; basal comb distinctly more reduced; base of vein between submarginal cells distinctly bent more obliquely or even at right angles to third vein; middle cross vein at from a little more than apical third to apical fourth of discoidal cell; the latter itself relatively much shorter and broader, its apex distinctly truncate or subtruncate, its apical vein straight and oblique. Vestiture without any black hairs on antennae below even in 3; black intermixed hairs on sides of tergites 5 and 6 in  $\beta$  fewer and without any in Q; hair on sides of thorax and sides of abdomen in 2 sometimes deeper yellowish to deep golden; transverse bands of scaling on abdomen of Q at least distinctly broader than in chraecoptera and occupying almost entire tergal surfaces. Head with the interocular space in 3 in front of ocellar tubercle distinctly broader, broader than front ocellus; space on vertex in 2 about 2 times distance between outer margins of posterior



Text-fig. 65. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia hemichroan. sp.

ocelli; face medially in front slightly more convex or subconical; slender part of antennal joint 3 distinctly shorter; proboscis more slender, slightly shorter. Legs with the tibiae darker, darker reddish brownish to blackish; middle femora with only 1 or 2 spines and hind ones with about 2 on outer lower apical part; basal joint of front tarsi in  $\mathcal P$  with some longish, bristle-like spicules below, distinctly longer than the normal ones in  $\mathcal P$  of chraecoptera. Hypopygium of  $\mathcal P$  shown in outline (text-fig. 65), differing from that of chraecoptera in having relatively shorter lateral struts and a basal strut which in side view is much shorter and differently shaped.

From I & and 2 PP (holotype in the South African Museum, allotype in the Transvaal Museum and a paratype in the Deutsches Entomologisches Institut).

Length of body: about 8-8½ mm. Length of wing: about 8-8½ mm. Locality: Transvaal: Moorddrift (Swierstra, Oct. 1909) (allotype); Magalieskraal, 60 km. NW. of Pretoria (Lingnau, 27 Jan. 1926). Holotype without locality-label, but without doubt also from the Transvaal.

# Lomatia semiclara n. sp.

A unique & specimen in the collections resembles both chraecoptera and hemichroa very closely as regards its wing-infuscation. Compared with these two species it however differs in the following respects:

Wings with the yellowish brownish infusion almost identical, also occupying more or less basal two-thirds, but agreeing more with that of hemichroa in being more extensive and also present in third and fourth posterior cells and also in anal and axillary cells, the latter two cells especially not so clear as in chraecoptera; apical margin of infusion however slightly darker, sub-band-like as in latter species; clear apical part of wings slightly more greyish hyaline, not so vitreous hyaline as in the other two species; basal comb also rudimentary; base of second submarginal cell acute as in chraecoptera; middle cross vein at about

between apical third and apical fourth of discoidal cell; the latter acute apically as in chraecoptera, its apical vein also slightly sinuous. Vestiture on body above more distinctly yellowish than in 33 of the other two species; sides of abdomen and hind margin of last tergite without any dark or black intermixed hairs; hair on pleurae and venter less contrastingly whitish. Head with the interocular space in 3 in front of ocellar tubercle much broader than in chraecoptera and even slightly broader than in hemichroa; proboscis fairly long, about 2 mm. long, its labellar lobes remarkably long, longer than antennal joint 3, much longer than in other two species and both these and base of proboscis with distinct spinules below. Legs with the tibiae as dark as femora, with about 2 spines anteriorly on middle femora and about 4 spines on outer lower part of hind ones. Hypopygium as shown in outline (text-fig. 66), with the outer apical angle of basal parts slightly more angularly



Text-fig. 66. Side view of hypopygium and dorsal view of right beaked apical joint of *d Lomatia semiclara* n. sp.

prominent than in either chraecoptera or hemichroa; basal strut from side much like that of former, but distinctly shorter and narrower.

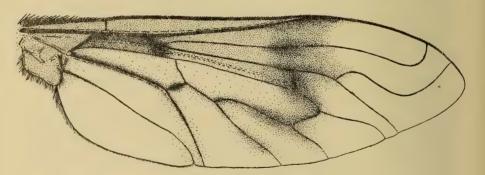
From a 3 in the British Museum. Length of body: about 10 mm. Length of wing: about 10 mm.

Locality: Natal: Weenen (Turner, 1-22 Jan. 1927).

# Lomatia pseudofasciata n. sp.

Body black; apices of third antennal joints yellowish; proboscis, especially labellar lobes, and tibiae (when denuded) appearing dark reddish brown or

dark piceous brownish. Vestiture with the hair on entire from and antennae above and below sericeous yellowish to pale golden yellowish; hair on sides of face and on genae more sericeous whitish, without any or with only a few intermixed dark or brownish ones on ocellar tubercle; hair on body above predominantly sericeous yellowish to golden yellowish; that on sides of abdomen distinctly deeper golden to deep orange golden from sides of tergites 3 or 4 to apex; hair on thorax above in 3 dense, velvety in appearance; that on sides of thorax in both sexes also appearing deeper sericeous yellowish; hair on propleural part also pale to deeper sericeous yellowish; that in hinder part of mesopleural tuft and on pleurae and venter, especially basally, distinctly more whitish or straw-coloured than above, but not very contrastingly whitish; thoracic and scutellar bristles entirely yellowish; distinct intermixed or sparse tufts of dark blackish brown bristly hairs present on sides of tergites 6-8 and across hind margin of 8 in 3, without any visible dark ones on sides of abdomen in Q, but only with some or a few intermixed dark hairs across hind margin of last tergite; scaling behind eyes gleaming pale sericeous yellowish to whitish; that on body above sericeous yellowish to golden yellowish, arranged in broadish bands across apical halves of tergites, broader and on entire tergal surfaces on sides; rest of tergal surfaces discally with black scaling; scaling on venter dense, especially on sides, and more sericeous whitish; that on legs predominantly dull greyish yellowish to slightly ochreous yellowish, especially on upper



Text-fig. 67. Wing of & Lomatia pseudofasciata n. sp.

surfaces, but appearing more greyish whitish on lower parts and posteriorly. Wings (text-fig. 67) with a fairly characteristic pattern, consisting of a sub-opaquely yellowish infusion at base and in costal cell, in slightly more than basal halves of marginal and first submarginal cells and entire first basal cell, extending apically across wings from opposite apex of costal cell to apical part of discoidal cell in form of a distinct, somewhat darker brownish, jagged, irregular, preapical band, in which the dark brownish is more evident and pronounced along the veins; narrowish yellowish brownish infusions also present along veins

between discoidal and second and third posterior cells and usually also on veins between second, third and fourth posterior cells; second basal and discoidal cells more or less clear or feebly subopaquely yellowish whitish; axillary and anal cells, greater part of hind border across posterior cells and apical part of wings clear to vitreous hyaline; veins dark reddish brownish, darker apically and in darkly infuscated part, paler in more yellowish part; a spot-like infusion present at common base of second and third veins and on apical cross vein of second basal cell; basal comb moderately developed; first posterior cell spindle-shaped, much narrowed apically; middle cross vein at about from between a little more than apical fifth to a little less than apical fifth of discoidal cell; the latter subacute to nearly subtruncate apically, its apical vein slightly oblique, only feebly sinuate; axillary lobe and alula fairly well developed; squamae subopaquely whitish, yellow-bordered, fringed with yellowish to deep yellowish hairs; knobs of halteres very pale. Head with the interocular space on vertex in 3 as wide as ocellar tubercle, the space in front of tubercle narrow, about as broad as narrow front part of tubercle; interocular space on vertex in Q relatively narrow, usually less than 2 times distance between outer margins of posterior ocelli (in one about 2 times); from not depressed anteriorly in 3, scarcely or only very slightly in Q, the dense hair anteriorly leaving only a small medial area bare; face very slightly convex medially; antennal joint 3 broadened club- or bulb-like basally, its apical half at least slender, the extreme apex sometimes slightly flattened; proboscis long, projecting beyond buccal cavity to at least level of antennal joint 2, with some fine, longish hairs below, its labellar lobes long, pointed apically, covered with rather conspicuous spinules. Legs without any or with 1 spine below on front femora; middle ones with about 2-4 spines on anterior lower part; hind femora with about 5-9

spines on outer lower part from near base, with numerous irregularly disposed spinelets along outer upper and upper part and with 2-4 longer apical ones above; basal joint of front tarsi in  $\mathcal{P}$  without any longish, bristle-like spicules below. Hypopygium of  $\mathcal{F}$  (text-fig. 68) with the outer apical angles of basal parts somewhat angularly produced, the hairs on apical part fairly dense and conspicuous; basal strut, when viewed from side, not deeply or angularly incised on its antero-dorsal margin near base.

From 1 3 and 5  $\mbox{$\mathbb{Q}$}\mbox{$\mathbb{Q}$}$  (types in the Transvaal Museum and paratypes in the South African Museum).

Length of body: about 12-14½ mm. Length of wing: about 13-16 mm.

Locality: Southern Rhodesia: Bulawayo (Stevenson, 20 March 1924) (holotype); Bulawayo (Stevenson, 8 Feb. 1924) (allotype); Bulawayo (Stevenson, 29 March



Text-fig.68. Sideview of hypopygium and dorsal view of right beaked apical joint of & Lomatia pseudofasciata n. sp.

1927); Saw Mills (Stevenson, 1924); Hillside (Stevenson and Swinburne, 4 March 1927); and 1 \( \phi\)-paratype without locality-label.

Apart from its fairly characteristic type of wing-infuscation, this species is easily recognized by the deep yellow hair, absence of black hairs on sides of abdomen in  $\varphi$ , and by the relatively narrowish interocular space in  $\varphi$ .

### Lomatia grahami n. sp.

A unique Q-specimen resembles the Q of pseudofasciata so closely in most respects that it may almost be considered as a southern variety of the Rhodesian species. In view of the fact that species of Lomatia show great similarity and that the 3 of this form is not represented, the few distinct differences between it and the Q of pseudofasciata are provisionally considered as of separate specific value. From the Q of the latter species it differs in the following respects: Legs with the tibiae and bases of tarsi very much paler, pale yellowish brownish; front femora with some small spinelets on outer upper apical part; middle femora also with about 4 spines anteriorly; hind ones with about 7 spines on outer lower part; basal joint of front tarsi in ♀ also without any longish spicules below. Wings, though identically infuscated, comparatively narrower; second vein distinctly less sinuous in apical part just before apical bend; first posterior cell distinctly less spindle-shaped, more broadly open, its apical width being quite as broad as length of middle cross vein whereas in pseudofasciata the width is very much less than length of middle cross vein; middle cross vein itself at about only a very little less than apical fifth of discoidal cell; the latter a little more acute apically; squamae with the fringe paler, more creamy. Vestiture with the hair on body above paler, more sericeous yellowish; that on sides of abdomen distinctly very much paler, not orange yellowish; that basally more whitish; hair in hinder part of mesopleural tuft, on pleurae and venter distinctly more contrastingly sericeous to snow-whitish, not straw-coloured whitish; hair on frons, antennae below and face distinctly more snow-whitish; scaling on body above more pale sericeous yellowish, not golden; that on legs also slightly more whitish. Head with the interocular space on vertex in 3 about 2 times distance between outer margins of posterior ocelli; slender part of antennal joint 3 comparatively shorter and the broadened basal part longer; proboscis slightly longer and its labellar lobes very much longer than antennal joint 3; frons apparently slightly more depressed anteriorly than in Q of preceding species.

From a Q in the South African Museum.

Length of body: about 14 mm. Length of wing: about 15 mm.

Locality: North-eastern Karoo: Dordrecht (Graham, Feb. 1892).

#### Lomatia asaphodesma Hesse

(Hesse, p. 394, South African Animal Life, ii, 1955.)

Very similar to both pseudofasciata and grahami in its wing-pattern and the subopaquely yellowish brownish infusion and very similar clear vitreous hyaline parts in the wings. From the former it however differs in the following respects: Vestiture with the hair on body above in 3 distinctly much paler, more whitish or pale sericeous yellowish and even in ♀ more whitish or straw-coloured; hair on greater part of frons, antennae below, face and genae usually conspicuously sericeous whitish; that in hinder part of mesopleural tuft, on pleurae and venter more snow-whitish; hair on sides of abdomen with more numerous intermixed black ones on sides of tergites 2 (or 3) to 7 (or 8); scaling on body above paler, more sericeous or pale brassy yellowish, the transverse bands on abdomen above slightly narrower. Wings narrower; middle cross vein at about from just before apical fifth to nearly or about apical seventh or eighth of discoidal cell; the latter also slightly more acute apically. Head with the interocular space in 3 in front of ocellar tubercle a little broader, only slightly narrower than tubercle; space on vertex in 2 also a little narrower than 2 times distance between outer margins of posterior ocelli; proboscis similar, also with fine hairs below. Legs with the tibiae usually tending to be distinctly paler, more yellowish; front femora sometimes with 1 or 2 spines below; middle ones with about 3 or 4 (sometimes 6 or 7) spines anteriorly below; hind femora with about 6-9 spines below from near base and also with numerous spinelets on outer upper part. From the Q of grahami this species differs in having distinct black hairs on sides of tergites 4 (or 5)-7 in  $\mathcal{L}$ , a more spindle-shaped first posterior cell which is more narrowed apically, a slightly shorter proboscis, shorter labellar lobes and less contrasting yellowish tibiae.

The hypopygium of 3 is like that of pseudofasciata, but differs in having slightly longer lateral struts and the antero-dorsal part of basal strut not rounded, but distinctly more angularly produced in side view.

From 4 33 and 1  $\bigcirc$  (types in the Commonwealth Institute and paratypes in the Zoological Institute of the University of Lund and in the South African Museum).

Length of body: about 11½-14 mm. Length of wing: about 13-15 mm.

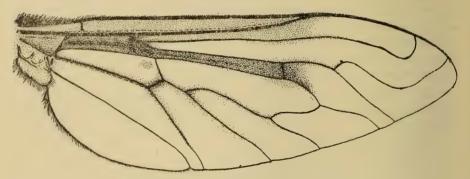
Locality: Natal: National Park (Ogilvie and Mackie, March 1932) (types); Royal National Park (Brinck and Rudebeck, 7–11 April 1951). Basutoland: Mokhotlong (Bevis, 2 Feb. 1939); Mamalapi Mtn. (Guillarmod, 31 Dec. 1948).

The  $\delta$ -paratype and a Q from Basutoland differ from the typical form in having more yellowish hair on antennae below and more spines on middle femora.

#### Lomatia mollivestis n. sp.

(Syn. = liturata Bezzi (nec Loew), p. 113, Ann. S. Afr. Mus., xviii, 1921.) (Syn. = gigantea Bezzi (nec loc. Nyasaland, p. 614, Trans. Ent. Soc. Lond., 1911), p. 80, Broteria (Ser. Zool.), xx, fasc. ii, 1922.)

Body mainly black; hind margins of sternites rather conspicuously pallid; apical parts of antennae vellowish; proboscis dark castaneous or piceous brownish; femora very dark blackish brown to black; tibiae dark reddish brown or even paler, yellowish brownish. Vestiture with the hair on ocellar tubercle, some basally on frons, that on antennae above and in 3 usually a few or some intermixed ones below black; hair on greater part of frons and on antennae below gleaming sericeous yellowish; hair on inner lower part of antennae sometimes with slightly golden or golden brownish gleams; hair on sides of face and on genae sericeous whitish; that on body above predominantly creamy yellowish to pale sericeous yellowish, appearing soft and velvety and with distinct sericeous to golden gleams in certain lights; thoracic and scutellar bristles very pale vellowish; hair on sides of abdomen becoming longer and more shaggy posteriorly, almost white basally, more sericeous yellowish to golden or ochreous yellowish or even orange golden towards apex, especially in  $\mathcal{Q}$ , and with intermixed black bristly ones on sides of tergites 5-7 (or 8); hair on pleurae, sides of tergite 1 and on venter more distinctly whitish than above, though not contrasting very much; scaling above pale sericeous yellowish, that across hind margins of tergites dense and with the individual hair-like scales arranged transversely, appearing felt-like; scaling on venter more whitish;



TEXT-FIG. 69. Wing of & Lomatia mollivestis n. sp.

that on legs greyish whitish, appearing dull greyish yellowish on upper outer surfaces of femora and on tibiae. Wings (text-fig. 69) with a fairly characteristic pattern, consisting of a pale subopaquely yellowish, yellowish, to pale yellowish brownish infusion at base, in costal cell and in basal half of marginal cell, and a more brownish infusion in entire first basal cell and extreme base of first posterior cell and narrow yellowish or pale yellowish brownish infusions along

the veins between second basal, anal and fourth posterior cells and between discoidal and first, second, third and fourth posterior cells and to a lesser extent along basal parts of veins bounding third and fourth posterior cells; basal half of first submarginal cell almost clear and vitreous hyaline like apical part of wings beyond apex of costal cell, second basal and discoidal cells, posterior cells and anal and axillary cells; extreme base of wings blackish brown; first vein, those at extreme base and basal half of fifth vein yellowish to pale yellowish reddish, the rest of veins darker reddish brown to blackish brown; basal comb dark, moderately developed; base of vein between submarginal cells sometimes bent down almost at right angles and with an indication of a stump at this bend; first posterior cell spindle-shaped, usually much narrowed apically, the vein between it and second posterior cell markedly sinuous; middle cross vein varying in position from a little less to a little more than apical fourth of discoidal cell; the latter acute apically, its apical vein longish, S-curved; axillary lobe and alula well developed; squamae subopaquely whitish, whitefringed; knobs of halteres almost white. Head with the interocular space on vertex in 3 as broad as ocellar tubercle, space in front of latter only a little broader than front ocellus or about as wide as front part of tubercle; interocular space on vertex in Q a little less than 2 times distance between outer margins of posterior ocelli; from slightly depressed anteriorly and with only a small bare area anteriorly; face not distinctly convex medially; antennal joint 3 broadened bulb-like basally and slightly less than apical half slender; proboscis projecting beyond buccal cavity to opposite level of base of antennal joint 3, with some fine hairs below, its labellar lobes narrow and pointed apically. Legs with about 1-3 small spines anteriorly below and some spinelets on outer upper part of

front femora; middle femora with about 6–9 long and short spines anteriorly below; hind ones with about 5–9 spines from near base below and numerous irregularly disposed spinelets on outer upper and inner apical parts, of which a few apical ones above are longish. *Hypopygium* of 3 (text-fig. 70) with the outer apical angles of basal parts not prominently produced and with rather longish and conspicuous hairs towards apices of basal parts; basal strut produced antero-dorsally.

From 3 33 and 1 2 (types in the South African Museum and a paratype in the Transvaal Museum).

Length of body: about 12½-14 mm. Length of wing: about 14-15½ mm.

Locality: Transvaal: Potchefstroom (Ayres) (types). Orange Free State: Zastron (Kruger, April 1919).

Easily recognized by the creamy or very pale yellowish hair and by the infusion in wings which is slightly darker in first basal cell and absent in first submarginal



Text-fig. 70. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia mollivestis n. sp.

cell. The wing-infuscation very closely resembles that figured for gigantea, a species which Bezzi described from Nyasaland (loc. cit., pl. L, fig. 2). So close is this resemblance that Bezzi himself wrongly identified the 3-paratype of this species (from Zastron) as his gigantea (see loc. cit., 1922). There is no doubt that this identification is erroneous for, according to Bezzi's description of the Nyasaland species, the latter is slightly larger, has golden hair on frons and face, has olive-brown tomentum and dense golden yellow hairs on the thorax, grevish hair on pleurae, yellow hair and golden scaling on abdomen above, golden hairs and scaling on legs, etc. The types and the other paratype in the South African Museum on the other hand were also wrongly determined by Bezzi as liturata Lw. (Bezzi, loc. cit. 1921). According to Loew's description of the latter and certain specimens in the collections before me, this species differs from liturata s. str. in not having black intermixed hairs on thorax above, in having black hairs only on sides of tergites 5-7 (or 8) and not on 3-7 (or 8) and in having no indication or tendency for a transverse darker preapical band to be present in the wing-infuscation.

#### Lomatia kaokoana n. sp.

Body black; apices of antennae sometimes yellowish; labellar lobes of proboscis dark castaneous brownish; tibiae and bases of tarsi (when denuded) dark brownish or dark reddish brown. Vestiture with the hair on ocellar tubercle, base of frons, antennae above and some intermixed ones below in some specimens black; hair on frons and especially on antennae below slightly pale sericeous yellowish; that on sides of face and on genae sericeous whitish; hair on body above straw-coloured yellowish to pale sericeous yellowish, especially in Q, becoming slightly more yellowish posteriorly on sides of abdomen; thoracic and scutellar bristles pale sericeous yellowish or straw-coloured; hairs on sides of tergites 4-7 (or 8) with black intermixed ones and also with black ones across hind margin of last tergite; hair on pleurae and venter more sericeous whitish than above; scaling above gleaming sericeous yellowish or brassy yellowish, more golden posteriorly in Q, extensive, though not very dense, and occupying most of the tergal surfaces laterally, but also with much black scaling; that on venter sericeous whitish or silvery; that on legs predominantly whitish or greyish whitish. Wings with a pattern consisting of a yellowish brownish, smoky brownish to coffee-brownish infusion, occupying the base, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell, extreme base of first posterior cell, and as infusions along veins between discoidal and posterior cells and to a certain extent also along veins between second and third and third and fourth posterior cells; apical part of this infusion, from level of apex of costal cell across to base of second posterior cell, tending to be darker, especially along veins in this region, and to constitute a sort of preapical band; a faint spot-like infusion present on apical cross vein of second basal cell; greater part of second basal cell and at least basal two-thirds of discoidal cell more or less clear like the vitreous hyaline apical part, the greater parts of posterior cells across hind border and the anal and axillary cells; alular part more subopaquely yellowish whitish; veins brownish to dark reddish brownish; basal comb poorly developed; first posterior cell slightly, or sometimes scarcely, narrowed apically; middle cross vein varying in position from about a little less than apical fourth to about apical sixth of discoidal cell; the latter acute apically, its apical vein substraight and slightly sinuous; alula and axillary lobe slightly reduced; squamae subopaquely whitish, yellowish bordered, white-fringed; knobs of halteres almost whitish. Head with the eyes in 3 separated by ocellar tubercle, the space in front of it, at narrowest part,

narrow and only a little broader than front ocellus; space on vertex in 2 about, or a very little less than, 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly in \(\tau\); face distinctly slightly convex medially; antennal joint 3 broadened club-like basally, its apical half or less slender; proboscis projecting beyond buccal cavity to at least opposite middle of antennal joint 3, with some sparse fine hairs below, its minutely spinulated labellar lobes narrow and pointed apically. Legs with a few minute spinelets on outer, upper, apical part of front femora; middle ones with about 2-4 spines anteriorly below; hind ones with about 2-5 spines on outer side below from about, or just before, middle and some fine spinelets on outer upper apical parts; basal joint of front tarsi in 2 without long and conspicuous bristle-like spicules below. Hypopygium of 3 (text-fig. 71) with the outer apical angles of basal parts not very much produced; lateral struts, viewed from ventral aspect of hypopygium, rather long; basal strut shaped as shown in outline.



TEXT-FIG. 71. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia kaokoana n. sp.

From 1 3 and 4 99 (types in the South African Museum).

Length of body: about  $6-9\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}-11$  mm.

Locality: South-west Africa (Kaokoveld): Kaoko Otavi (Mus. Exp., March 1926) (types); Kamanyab (Mus. Exp., March 1925).

This species is slightly variable in size, in the intensity of the wing-infusion and in the apical width of first posterior cell. Superficially the wing-infusion resembles that of *chraecoptera* to a certain extent, but the second basal, discoidal, anal and axillary cells are clear, whereas the second basal and discoidal cells in *chraecoptera* are distinctly tinged yellowish like the anterior infused parts and even the third and fourth posterior cells are also tinged in the latter. Moreover the broadened base of antennal joint 3 is longer and more club-like and not shortish and bulb-like as in *chraecoptera*.

#### Lomatia nivosa n. sp.

Body black; tibiae and bases of tarsi yellowish or very pale yellowish brownish. Vestiture with the hair on ocellar tubercle, basal half of frons and on upper and inner parts of antennae black; that on rest of frons, antennal joints below, on face and on genae sericeous or snow-whitish; hair on body above and below, including thoracic and scutellar bristles, also snow-whitish; that on propleural part, however, gleaming sericeous yellowish in certain lights; black intermixed hairs present on sides of tergites 4-7 and across hind margin of 7; scaling above silvery behind eyes, pale golden to golden yellowish on thorax and abdomen. especially on sides towards apex; that on venter silvery whitish; scaling on legs predominantly whitish or greyish whitish, appearing slightly yellowish on tibiae. Wings with a dark blackish brown infusion, occupying base, costal cell, more than basal halves of marginal and first submarginal cells, the entire first basal cell, base of first posterior cell, apical part or half of discoidal cell and conspicuously along veins separating discoidal cell from second and third posterior cells; at least basal two-thirds of second basal cell and its apical cross vein also infused, the infusion also extending or projecting apically along base of vein between submarginal cells, the apical margin of infusion thus not straight; apical part of second basal cell and medial basal part of discoidal cell more or less clear and with the apical part of wings, broadish hind border across the greater part of posterior cells and the entire anal and axillary cells clear vitreous hyaline; alular part opaquely yellowish; veins dark blackish brownish; basal comb much reduced; first posterior cell narrowed apically; middle cross vein at about, or a little more than, apical seventh of discoidal cell; the latter acute apically; alula and axillary lobe slightly reduced; squamae opaquely whitish, white-fringed; knobs of halteres whitish. Head with the interocular space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons slightly foveately depressed anteriorly, the hair sparse medially; face slightly, but distinctly, convex medially; antennal joint 3 broadened bulb-like basally and fairly rapidly narrowed from base to slender part; proboscis projecting beyond buccal cavity to level of antennal joint 2, with a few fine hairs below, its finely spinulated labellar lobes narrow and pointed apically. Legs with about 3 or 4 spines on middle femora in front; hind ones with about 4 or 5 spines from just before middle below on outer aspect, with some fine spinelets on outer lateral aspect and 2 or 3 longer apical ones above; basal joint of front tarsi in Q without long and conspicuous spicules below.

From a Q in the British Museum. Length of body: about 9 mm.

Length of wing: about 10 mm.

Locality: East Cape Province: Katherg (Turner, 1-10 Feb. 1933).

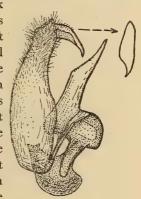
Easily recognized by its pale yellowish tibiae, predominantly sericeous whitish hair and dark infusion in anterior basal two-thirds of wings. From the Q of *chraecoptera* it may at once be distinguished by its darker infusion in wings, which

is continued apically along base of vein between submarginal cells, by the clearer hind border, especially in third and fourth posterior cells, its shorter first posterior cell, less sharply acute discoidal cell, the middle cross vein which is nearer apex of discoidal cell, more snow-whitish hair on body above and by the presence of black hairs on sides of tergites 4–7 and not only on 5–7. From *kaokoana* it differs in having the second basal and discoidal cells less clear, more snow-whitish hair and much paler tibiae.

# Lomatia basutoënsis n. sp.

The  $\varphi$ -specimen of this new species is almost indistinguishable from *nivosa* as far as its wing-pattern and wing-infuscation and general white hair are concerned. Certain other differences, however, point to a separate specificity: *Vestiture* with the hair on the antennae below with distinct intermixed black ones; that in collar-region across front margin of pronotum with distinct and

conspicuous intermixed dark or black hairs and the black ones on sides of abdomen are distinct and conspicuous only on sides of tergites 5-7, there being no dense tuft also on sides of tergite 4 as in nivosa. Head with antennal joint 3 much broader, more bulb-shaped at base, the slender part relatively shorter; proboscis a little less than 1.5 mm. long, projecting less beyond buccal cavity, its labellar lobes relatively longer than in nivosa and not shorter than basal part. Legs with the tibiae darker. One 3-specimen from the same region probably represents the ♂ of this species. It differs from the \(\mathcal{Q}\)-specimen in not having the base of vein between the submarginal cells in the wings so conspicuously infuscated, and the tibiae are distinctly more yellowish like those of \( \varphi\)-nivosa. Other characters, such as the white hair and distribution of black hairs on sides of abdomen, agree with those of the ♀ and not with nivosa. The interocular space in front of ocellar tubercle is narrow, only about as broad as



TEXT-FIG. 72. Side view of hypopygium and dorsal outline of right beaked apical joint of 3 Lonatia basutoënsis n. sp.

front occllus. The third antennal joints are missing in this specimen. Hypopygium of this 3 (text-fig. 72) with a tendency for beaked apical joints (shown in dorsal outline to the right) to be narrowish.

From a 3 and a 9 (3-type in the Durban Museum, 9-type in the South African Museum).

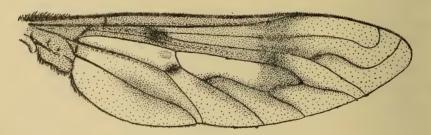
Length of body: about  $9\frac{1}{2}$  mm. in 2, 8 mm. in 3.

Length of wing: about 11 mm. in Q, 9 mm. in Z.

Locality: Basutoland: Giant's Castle (Bevis, 16 Feb. 1939) (♂); Lekalabetsi River (Bevis, 9 April 1939) (♀).

#### Lomatia glauciella n. sp.

Body black; hind margins of sternites rather conspicuously yellowish; proboscis very dark piceous or castaneous brownish; legs with the subapical parts of femora vellowish brownish and the tibiae and base of tarsi vellowish or very pale yellowish brownish. Vestiture with the hair on ocellar tubercle, base of frons, antennae above and intermixed ones on antennae below black: hair on rest of frons, antennae below, sides of face and on genae sericeous whitish; that in mesopleural tuft, on pleurae and venter also sericeous or snow-whitish; hair on body above with distinct sericeous yellowish to very pale golden gleams in certain lights, that in front of wings as well as the thoracic and scutellar bristles and even some bristles in mesopleural tuft distinctly sericeous yellowish to pale golden; numerous, fine, erect, intermixed, black hairs present on disc of thorax and scutellum; hair on abdomen whitish on sides basally, but more golden to deep golden towards hind part from sides of tergite 3; a few black hairs present on sides of tergites 2 and 3 and more numerous and denser ones on sides of 4-8; scaling behind eyes laterally silvery whitish; that discally on thorax above and on base of scutellum golden; that on sides basally of scutellum and across hind margins of tergites 1 and 2 sericeous whitish; scaling on rest of abdomen above deep golden, especially on sides; that on venter dense and gleaming silvery



Text-fig. 73. Wing of & Lomatia glauciella n. sp.

whitish; that on legs predominantly whitish, but slightly greyish, yellowish on femora above and on tibiae. Wings in 3 (text-fig. 73) relatively short, tinged greyish or faintly smoky greyish throughout, only second basal and discoidal cells and to a lesser extent base of anal cell appearing more hyaline; alular part, costal cell, basal halves of marginal and first submarginal cells and greater part of first basal cell slightly more subopaquely yellowish; a faint smoky brownish or greyish brownish infusion or cloudiness in the form of a faint preapical band visible from apex of costal cell across to base of second posterior cell and as a cloudiness or faint infusion along veins between discoidal and posterior cells and along the veins between posterior cells and also along vein between anal and axillary cells; a spot-like infusion present on apical cross vein of second basal cell and also along base of vein between submarginal cells; first, third and fourth main veins more or less yellowish brownish, the rest of the veins

more blackish brownish; basal comb much reduced; apical part of second vein rather recurved; first posterior cell much narrowed apically; middle cross vein at a little more than apical fifth to apical fourth of discoidal cell; the latter acute apically, its apical vein slightly sinuous; alula and axillary lobe moderately developed; squamae subopaquely whitish, yellowish-bordered, white-fringed; knobs of halteres almost white. Head with the eyes in 3 separated on vertex by ocellar tubercle, the space in front of it, at narrowest part, very narrow and only a little wider than front ocellus; frons scarcely depressed in front and the medial part bare anteriorly; face slightly convex medially; antennal joint 3 gradually broadened club-like basally, the apical slender part short; proboscis projecting beyond buccal cavity to level of antennal joint 2, its minutely spinulated labellar lobes narrow and fairly sharply pointed apically. Legs with 2 or 3

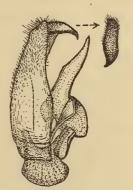
small spines medially in front and 4 or 5 behind on front femora; middle ones with about 6 long and short spines in front and 3 or 4 behind; hind ones with about 9 or 10 somewhat irregularly disposed spines on outer side below from near base, some smaller ones laterally and a few longer ones apically above. *Hypopygium* (text-fig. 74) with the lateral struts rather broadish; hairs on apical part of basal parts not very dense, long, or conspicuous; beaked apical joints as shown in dorsal view.

From a 3 in the South African Museum.

Length of body: about 10½ mm. Length of wing: about 10 mm.

Locality: South-western Cape Province: Caledon (Barnard, March 1918).

Easily recognized by the smoky greyishly tinged wings which show darker smoky brownish cloudiness or infusions preapically and along the veins in posterior parts,



Text-fig. 74. Side view of hypopygium and dorsal view of right beaked apical joint of *& Lomatia glauciella* n. sp.

by the fine, blackish, intermixed hairs on thorax and by the yellowish tibiae. From a faded specimen of *pictipennis*, which may show a similar type of wing-infuscation, it may at once be distinguished by the presence of fine black hairs on thorax above and black hairs on sides of tergites 3–8, more whitish hair on thorax, narrower interocular space, etc.

#### Lomatia liturata Lw.

(Loew, p. 205, Dipt. Faun. Südafr., i, tab. ii, fig. 13, 1860.)

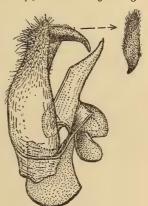
As was stated under *mollivestis*, Bezzi wrongly identified this species in his paper on the South African Bombyliidae (p. 113, Ann. S. Afr. Mus., xviii, 1921). It is thus doubtful whether the specimens from Natal to which he refers (p. 145, The Bombyliidae of the Ethiopian Region, 1924) belong to liturata. By a careful comparison of some 33 and 99 in the collections before me with Loew's description (loc. cit.) and his figure (tab. ii, fig. 13) of the wing there appears to be

very little doubt that these specimens belong to Loew's liturata. The characters of this species, as based on the material before me, are as follows:

Body black; apices of antennae sometimes yellowish or yellowish brownish; labellar part of proboscis tending to be brownish or dark yellowish brownish; subapical part of femora, excluding black knees, the tibiae and the basal parts of tarsi yellowish brownish to reddish or castaneous brownish, even appearing paler when denuded. Vestiture with the hair on ocellar tubercle, slightly more than basal half of frons, antennae above and some or numerous intermixed ones on inner lower parts of antennae black; that on front part of frons and on antennae below gleaming very pale sericeous yellowish to even distinctly yellowish, especially on antennae below; that on sides of face and on genae more sericeous whitish; hair in hinder part of mesopleural tuft, on pleurae and venter sericeous whitish; that on thorax above straw-coloured yellowish, creamy to pale sericeous yellowish, that on each side in front of wings even more yellowish in certain lights; intermixed bristly hairs on thorax in front and on sides, the prealar, postalar and scutellar bristles and even some bristly hairs on coxae reddish golden or yellowish reddish; numerous, fine, shortish, erect, intermixed, black hairs present on disc of thorax and scutellum, and also on each side in front of wings; hair on abdomen more whitish to sericeous whitish on sides of tergites 1 and 2, but becoming more sericeous yellowish to yellowish posteriorly and with distinct black bristly ones or tufts on sides of tergites 2-7 (or 8); scaling on body above brassy to deep golden on disc of thorax and scutellum, that transversely across hind margins of tergites 1-3, in 3 especially, paler, more whitish, usually longer, denser and more felt-like and the rest of the pale scaling more concentrated on sides of abdomen; rest of scaling on abdomen black; that on venter silvery whitish; scaling on legs grevish whitish on femora below and more greyish yellowish to dull yellowish on femora above and on tibiae. Wings with a pattern very similar to that figured by Loew (loc. cit., tab. ii, fig. 13), consisting of a more or less yellowish brownish, smoky brownish to blackish brownish infusion in anterior basal two-thirds, which is more or less subopaquely yellowish, dirty yellowish or yellowish whitish at base, in costal cell and in a little less than basal halves of marginal and first submarginal cells and darker or more chocolate-brownish in an irregular preapical band from apex of costal cell across to extreme base of first posterior cell and upper part of discoidal cell just under middle cross vein, in entire first basal cell, at base of vein between submarginal cells, as a cloudiness or infusion along veins between discoidal and posterior cells, to a lesser extent along veins between third and fourth posterior cells and also along veins between anal and fourth posterior cells and anal and axillary cells, leaving the greater parts of second basal and discoidal cells more or less clear like the apical third of wings, greater part of posterior cells and the anal and axillary cells; basal third of first submarginal cell usually also tending to be subopaquely clear like second basal and discoidal cells, sometimes with a distinct, though faint, brownish or smoky tinge in third and fourth posterior cells and apical part

of anal cell; a distinct spot-like infusion present on apical cross vein of second basal cell and a fainter one at base of third posterior cell; veins very dark brownish to blackish brown, the first vein, basal half of third and sometimes the fifth being, however, more reddish brownish; basal comb moderately developed; first posterior cell distinctly narrowed apically; middle cross vein varying in position from about a little more than apical fifth to a little more than apical sixth of discoidal cell; the latter not very sharply acute apically, its apical vein substraight or slightly sinuous; alula and axillary lobe fairly well developed; squamae subopaquely whitish, yellowish-bordered, whitish-fringed; knobs of halteres very pale. Head with the eyes in  $\delta$  separated by ocellar tubercle, the narrow space in front of it, at narrowest part, only a little broader than front ocellus; interocular space on vertex in  $\varphi$  about, or a very little less than, 2 times distance between outer margins of posterior ocelli; frons slightly foveately depressed anteriorly, especially in  $\varphi$ , its hair dense anteriorly, leaving only a small bare area; face very slightly convex medially; antennal joint 3

broadened club-like basally, gradually narrowed to a slender apical part; proboscis projecting beyond buccal cavity to opposite base of antennal joint 3, with sparse, fine hairs below, its finely spinulated labellar lobes narrow and pointed apically. Legs sometimes with more numerous spines on femora in 3 than in Q, with only about 1 or 2 spines in front on front ones in some  $\mathcal{P}$ , and sometimes as many as 9 below in 3 and in some 99, and sometimes with numerous spinelets on outer apical part as well; middle femora with about 2-5 spines in front in some QQ, and about 4-12 in some 33 and QQ; hind ones with about 4-6 spines in 2 and 6-10 in 3 anteriorly below, with numerous spinelets along outer upper aspect and some longish ones apically above; basal joint of front tarsi in Q without any long and conspicuous bristle-like spicules below. Hypopygium of 3



TEXT-FIG. 75. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia liturata Lw.

(text-fig. 75) with the outer apical angles of basal parts rather angularly prominent with some coarse punctures on apical parts of basal parts, the ramus on each side from basal part to aedeagal complex broad and well developed; lateral struts broadish.

In the Transvaal and South African Museums.

Length of body: about 8-14 mm. Length of wing: about  $8\frac{1}{2}$ -14\frac{1}{2} mm.

Locality: Cape Province, Karoo, and Orange Free State.

Slightly variable in size and in the intensity of the wing-infusion. Certain specimens from the Eastern Cape in the collections differ from the form described above in having the tibiae darker or almost black, more uniformly and darker

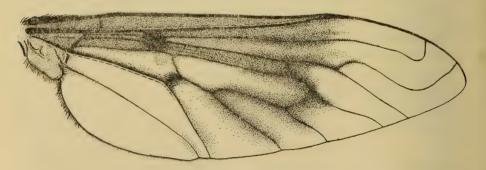
infuscated wings of which the costal cell, more than basal half of marginal cell and first basal cell are more uniformly brownish or chocolate-brownish and the tendency for a distinct preapical darker band thus less evident; third and fourth posterior cells and apical part of anal cell also more distinctly tinged; black hairs on thorax discally more numerous and in some cases even some of the prealar bristles are also dark and the dark intermixed hairs on antennae below are also more numerous.

Three other \$\pi\$ from the Koup Karoo also appear to represent another distinct form which is characterized by a very dark blackish brown infuscation in the wings in which the costal cell, like the Eastern Cape form, is not slightly yellowish; hair on body, especially on thorax above and abdomen, distinctly whiter than in more typical forms, without any sign of intermixed dark hairs on disc of thorax and scutellum; tufts on antennae below entirely sericeous white, without any intermixed black hairs.

### Lomatia grisealis n. sp.

This species resembles *liturata* so closely that it may almost be considered as a distinct and well-defined variety. There are nevertheless distinct and constant differences which point to a separate specific status. Compared with *liturata* and its slight varieties these specimens differ in the following respects:

Vestiture with the hair on antennae below in both sexes entirely sericeous whitish and without any dark intermixed hairs; that on thorax above, excepting the fine, erect, black hairs discally above on each side, predominantly whitish to sericeous whitish, not tinted creamy yellowish or sericeous yellowish and not or scarcely contrasting much with the white hair on pleurae and venter; prealar, postalar and scutellar bristles yellowish, there being also no distinct intermixed reddish golden bristly hairs on sides of thorax; hair on sides of abdomen predominantly sericeous whitish in both sexes, not becoming yellowish posteriorly; black hairs present only on sides of tergites 3–7 (or 8). Wings (text-fig. 76) with the dark blackish brown or chocolate-brownish infusion very similar, but more uniform, there being no tendency for a transverse medial



Text-fig. 76. Wing of & Lomatia grisealis n. sp.

more subopaquely yellowish band to be present and thus also no distinct indication of a darker preapical transverse band; basal part of first submarginal cell also less clear, the apical part of discoidal cell also more infused and apical part of anal cell more constantly clear and the apical clear hyaline part of wings showing a more distinct milky whitish tint in certain lights; first posterior cell tending to be less narrowed apically. Head with the interocular space in front of ocellar tubercle in 3 slightly narrower, only about as wide as front ocellus, but distinctly longer and about as long as narrowish tubercle, whereas in liturata it is slightly shorter than the tubercle; space on vertex in 2 about 2 times distance between outer margins of posterior ocelli. Legs with the tibiae much darker, not very much paler than femora; front femora with about 2-6 small spines in front and some spinelets along outer apical part; middle ones with about 4-10 spines in front; hind ones with about 6-11 spines from near base on outer side below. Hypopygium of 3 resembles that of liturata, but the lateral struts are slightly longer and basal strut is distinctly less long and broad from side view, slightly differently shaped, its dorsal angle distinctly more produced and angular and its general shape more like that of basutoënsis (cf. text-fig. 72) or semiclara (cf. text-fig. 66).

From 3 33 and 1  $\circ$  (types in the Transvaal Museum and a paratype in the South African Museum).

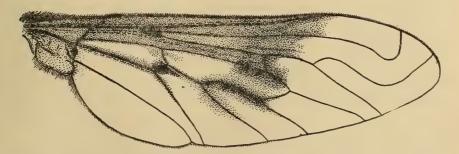
Length of body: about 11-13 mm. Length of wing: about 12\frac{1}{2}-14\frac{1}{2}\text{ mm.}

Locality: Eastern Cape Province: Resolution in the Albany Dist. (Walton, 18 April 1928 and April 1927) (types). Karoo: Willowmore (Brauns, March 1916).

# Lomatia crossodesma n. sp.

A 3-specimen in the collections before me also belongs to the *liturata* and *grisealis* series as far as its wing-infusion and general superficial resemblance go. When compared with both of them it, however, differs in the following respects:

Vestiture with the hairs distinctly shorter on both thorax and abdomen; hair on thorax with a distinct shortish shorn-off appearance and that on head in



Text-fig. 77. Wing of & Lomatia crossodesma n. sp.

front also comparatively shorter; that on antennae below with fewer dark ones than in liturata; that on thorax above slightly paler than in liturata, but more creamy yellowish than in grisealis; dark hairs on disc of thorax much shorter and finer than in these two species, almost confined discally on each side, being absent on sides towards the front and also on disc of scutellum; hair on sides of abdomen shorter, the black hair or tufts on sides of tergites 3-8 distinctly very much denser, more conspicuous; pale sericeous yellowish to greyish yellowish scaling on abdomen distinctly denser, arranged in broader and more conspicuous transverse bands; scaling on legs also appearing more yellowish in certain lights. Wings (text-fig. 77) with the smoky brownish infusion occupying the costal cell, more than basal halves of marginal and first submarginal cells, entire first basal cell, extreme base of first posterior cell and as a cloudiness in apical half of discoidal cell, along vein between discoidal and third posterior cells, without any basal infusion in second posterior cell; the infusion not showing distinct transverse bands as in liturata and differing from that of grisealis in being absent from second posterior cell basally and less conspicuous along veins between discoidal cell and posterior cells, a more extensive apical part and broader hind border in addition to the anal and axillary cells being clear hyaline; basal comb even more reduced; first posterior cell slightly less narrowed apically, more like that of grisealis; middle cross vein between apical fourth and apical fifth of discoidal cell. Head with the narrow interocular space



Text-fig. 78. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia crossodesma n. sp.

in front of ocellar tubercle in 3 like that of liturata and thus distinctly shorter than that of grisealis; antennal joint 3 with the slender apical part tending to be shorter than in the other two species. Legs with the tibiae as dark as in grisealis; middle femora with about 6 spines in front; hind ones with about 5 or 6 spines externally below and with numerous spinelets along outer and upper apical parts. Hypopygium as shown in text-fig. 78, with the basal parts slightly narrower than in liturata, but also punctured in neck region; lateral struts distinctly narrower and more pointed apically than in liturata and the basal strut slightly differently shaped, and with a small triangular flange present laterally on each side of its base.

From a  $\eth$  in the Transvaal Museum.

Length of body: about 10 mm.

Length of wing: about 11 mm.

Locality: Karoo: Willowmore (Brauns, April 1924).

Lomatia albicoma n. sp.

Body black; apical parts of third antennal joints yellowish or pale yellowish brownish; proboscis dark blackish brownish; legs dark castaneous brownish,

the tibiae slightly paler than the femora, more reddish brownish or even yellowish brownish in some specimens. Vestiture with the hair on frons anteriorly, antennae below, on sides of face and genae sericeous whitish; that at base of frons, on antennae above and on inner lower parts black; hair on body above and below predominantly snow-whitish or sericeous whitish; that on sides of abdomen posteriorly sometimes gleaming slightly sericeous yellowish in certain lights; tufts on extreme sides of tergites 4 (or 5) to 7 (or 8) black; prealar, postalar and scutellar bristles pale sericeous yellowish to yellowish; scaling above gleaming very pale sericeous yellowish to almost whitish in 3, distinctly more brassy yellowish in Q, denser and more conspicuous in Q across hind margins of tergites, especially on sides; that on venter sericeous whitish in both sexes; that on legs white, appearing slightly greyish yellowish on tibiae in certain lights. Wings for the greater part glassy hyaline, iridescent, with the base, costal cell, basal parts of marginal and first submarginal cells, greater part of first basal cell, second basal cell to a great extent, base of discoidal cell and sometimes even extreme base of fourth posterior cell tinged pale yellowish brownish; basal comb poorly developed; first posterior cell slightly narrowed, but still broadly open apically, distinctly much longer than discoidal cell; the latter truncate apically, its apical cross vein straight and oblique; middle cross vein at a little less than apical third to a little less than apical fourth of discoidal

cell; alula and axillary lobe comparatively well developed, the latter broad; squamae subopaquely whitish, white-fringed; knobs of halteres almost white. Head with the interocular space in front of ocellar tubercle in & narrow, only a little broader than front ocellus, or about as broad as narrow front part of tubercle; space on vertex in about 2, or a little more, times distance between outer margins of posterior ocelli; frons not or scarcely depressed anteriorly; face very slightly convex medially; antennal joint 3 bulbshaped or onion-shaped basally, the apical slender part rather slender; proboscis projecting much beyond buccal cavity, its labellar lobes narrow, long, and pointed apically. Legs with I spine anteriorly on middle femora below; hind femora with 3 or 4 spines on outer lower apical part, at least 2 apical spines above and some spinelets on outer apical aspect; basal joint of front tarsi in Q with some longish,



Text-fig. 79. Side view of hypopygium and dorsal view of right beaked apical joint of *Lomatia albicoma* n. sp.

bristly spicules below. Hypopygium of 3 as shown in text-fig. 79, with less hair on apical parts of basal parts than in preceding species and with the lateral struts rather angularly pointed apically.

From 7 33 and 3 99 (holotype in the Transvaal Museum, allotype in the South African Museum and paratypes in the Albany Museum).

Length of body: about  $5\frac{1}{2}$ -8 mm.

Length of wing: about  $5\frac{1}{2}$ -9 mm.

Locality: South-eastern Cape Province: Resolution (Grahamstown in Albany Dist.) (Walton, 25 March 1928 (holotype), Jan.-April 1928 (allotype), 19 March 1928, 21 March 1928); Fort Brown (Walton, 20 March 1928).

Easily recognized by the yellowish brownish infusion in wings which occupies more or less anterior basal half, the well-developed alula and axillary lobe, truncate discoidal cell, the predominantly white hair and frons which is not distinctly depressed anteriorly. From *pulchriceps* Lw. it may at once be distinguished by the predominantly white hair, absence of black hairs on antennae below, pale prealar bristles, dark hairs only on sides of tergites 4–7 (or 8), bulb- or onion-shaped antennal joint 3, etc.

# Lomatia salticola n. sp.

Body black; apical parts of antennae yellowish; proboscis very dark castaneous or piceous brownish; palps dark reddish brownish; tibiae and basal parts of tarsi appearing black, but, when denuded, very dark reddish or piceous brownish. Vestiture with hair on ocellar tubercle, on more than basal half of frons, antennae above and intermixed hairs, or a dense tuft in 3, on inner lower aspect of antennae black; that on front part of frons, outer lower parts of antennae, face and genae sericeous whitish; that on antennae below sometimes with a distinct sericeous yellowish tint, especially in some QQ; hair on body above predominantly sericeous yellowish to golden or deep golden yellowish; that on thorax, especially laterally, with a deeper and more reddish or orange golden sheen in certain lights; that on abdomen discally above appearing slightly paler sericeous yellowish to even almost whitish in some 33, that on sides in 3 on the whole paler and more whitish and even more sericeous whitish on sides of tergites 1 and 2; thoracic and scutellar bristles entirely golden yellowish to reddish golden; conspicuous black bristly hairs or tufts present on sides of tergites 2-7 (or 8), but more conspicuous in 3; hair in lower parts of mesopleural tuft, on pleurae and venter white or sericeous whitish, contrasting with that above; some intermixed black hairs on last sternite; scaling on thorax and abdomen above golden to deep or even reddish golden in certain lights; that on abdomen in narrowish transverse bands, more conspicuous laterally; scaling on venter sericeous whitish; that on legs gleaming ochreous yellowish to slightly brownish yellowish on outer and upper surfaces of femora and on tibiae, but more greyish whitish on lower and posterior parts of femora. Wings with a greyish subopacity or greyish hyaline tinge throughout, the extreme base blackish; the base, costal cell, basal half of marginal cell and entire first basal cell yellowish brown to brownish, the costal cell and base slightly more subopaquely yellowish and the entire first submarginal cell greyish hyaline like rest of uninfuscated parts; veins dark brownish or blackish brown, the first and fifth veins being slightly paler; basal comb moderately developed; first posterior cell narrowed apically; apical part of second vein rather recurved at apex; middle cross vein varying in position from about a little more than apical fifth to about, or a little more than, apical sixth of discoidal cell; the latter slightly acute apically, its apical vein slightly sinuous; alula and axillary lobe well developed; squamae subopaquely dirty whitish, darkbordered, whitish-fringed; knobs of halteres very pale yellowish. Head with the eyes in 3 separated by ocellar tubercle on vertex, the space in front of it only a little narrower than tubercle; space on vertex in 9 about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons shining in 9, slightly transversely depressed anteriorly in 9, much less evident in 3, its hairs dense anteriorly, leaving only a small medial area bare; face distinctly convex

medially, more or less turnidly prominent apically; antennae with joint 1 comparatively stout and incrassate, with joint 3 thickened club-like basally, narrowed apically, more so below, to a slender apical part at least half as long as broadened base; proboscis comparatively long, projecting much beyond buccal cavity to even beyond middle of antennal joint 3, without any visible spinules below, its finely spinulated labellar lobes narrow and pointed apically; palps subequal in length to, or a little longer than, antennal joint 3. Legs without any or with 1 spine anteriorly and usually with 2 or 3 spinelets on outer upper part of front femora; middle ones with about 3-5 spines below in front; hind ones with about 5-6 spines from just before middle anteriorly below, with some spinelets along outer and upper parts and with a few longer ones apically above; basal joint of front tarsi in ♀ with some longish, bristle-like spicules below



TEXT-FIG. 80. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia salticola n. sp.

towards apex, these however shorter than the joint itself. *Hypopygium* of 3 (text-fig. 80) with rather longish and conspicuous hairs on apical part of basal parts; beaked apical joints tending to be broadish and leaf-shaped.

From 2 33 and 5 99 (types in the South African Museum).

Length of body: about  $11\frac{1}{2}-13\frac{1}{2}$  mm. Length of wing: about  $11\frac{1}{2}-14$  mm.

Locality: Koup Karoo-Little Karoo: Meiringspoort (Barnard, Feb. 1932). Easily recognized by the greyish subopacity of the wings and the yellowish brownish infusion in costal part and first basal cell, golden yellowish hair on body above, etc. Superficially it resembles pulchriceps Lw., but may at once be distinguished by the more greyish-tinged wings, first posterior cell which is relatively shorter and more narrowed apically, more contrasting whitish hair on body below, less dense black hair on antennae below, larger size, etc.

# Lomatia vicinalis n. sp.

Body black; buccal rim, proboscis, palps and tibiae very dark reddish brownish. Vestiture with the hairs on ocellar tubercle, base of frons and on

antennae above black; that on frons, antennae below and genae gleaming sericeous yellowish; that on body above sericeous yellow or pale golden, without any black prealar bristles; hair on pleurae scarcely paler; that on sides of abdomen gleaming paler sericeous yellowish in certain lights; black hairs present on sides of tergites 5–8 and without any dark hairs on last sternite; scaling on thorax (where still present) golden yellowish; that on legs dull yellowish to whitish, more yellowish on femora. Wings with a uniform greyish brownish tinge throughout, the base, costal cell, basal half of marginal cell and first basal cell darker, more yellowish brownish, the costal cell appearing more yellowish; brownish spot-like indications present on apical cross veins of first and second basal cells; veins yellowish or reddish brown; basal comb moderately developed; first posterior cell broadish, narrowed apically, but still broadly open on hind margin, much shorter than discoidal cell; middle cross vein at a little less than apical fourth of discoidal cell; the latter slightly acute



TEXT-FIG. 81. Side view of hypopygium and dorsal view of right beaked apical joint of documents of Lomatia vicinalis n. sp.

apically, its apical vein slightly sinuous and joining first posterior cell at a point considerably lower than base of vein between submarginal cells on opposite side of cell; alula with its apex moderately lobelike; squamae subopaquely dirty whitish, whitefringed; knobs of halteres yellowish. Head with the eyes in 3 separated by ocellar tubercle on vertex, the space in front of tubercle only a little narrower than tubercle; frons with the hair anteriorly occupying entire middle upper part; face convex medially; antennae with joint 1 stout and incrassate, joint 3 thickened club-like basally, the slender part a little more than 1½ times as long as basal bulb-like part; proboscis fairly relatively long, projecting much beyond buccal cavity, with fine and minute spinules below, its labellar lobes elongated and pointed apically; palps nearly or about as long as antennae. Legs without any spines visible on front femora; hind

ones with about 4 spines on outer apical aspect. Hypopygium of 3 (text-fig. 81) very similar to that of salticola, but with the beaked apical joints more slender and narrower and the aedeagus also more slender, its apical half slightly longer.

From a 3 in the British Museum. Length of body: about 11 mm. Length of wing: about 13 mm.

Locality: Natal: Willow Grange (Wroughton, 27 Jan. 1914).

Superficially this species resembles *salticola* from which it may be distinguished by the more sericeous yellowish hair on head in front, absence of any black hairs on antennae below, more yellowish hair on body below, the presence of black hairs only on sides of tergites 5–8, distinctly longer palps, slightly longer first

posterior cell, paler anterior infuscation in wings, darker tibiae, etc. From other species with slightly tinged wings it is distinguished in the key.

#### Lomatia oreophila n. sp.

Body black; proboscis dark castaneous brownish; legs dark. Vestiture with the hair on body above predominantly sericeous yellowish to golden yellowish; that on body below scarcely paler, but showing paler sericeous gleams, especially on venter, where it is almost white in certain lights; pale hair on frons anteriorly and on antennae laterally below sericeous yellowish to golden, that on genae more whitish; hair on basal half of frons, antennae above, densely on inner lower aspect of antennal joint 1, at least three or four (or sometimes more) prealar and sometimes some postalar bristles and intermixed bristles on sides of tergites 2-7 (or 8) black; scaling on body above gleaming brassy yellowish or golden, those concentrated in transverse bands across hind margins of tergites slightly broader and more conspicuous in 9; that on venter more whitish; that on legs greyish whitish, but appearing more yellowish greyish, especially on outer surfaces, in certain lights. Wings with a dark yellowish brown or blackish brown infuscation occupying the base, costal cell, basal half of marginal cell, more or less basal half of first submarginal cell, entire first basal cell, extreme base of first posterior cell and to a lesser and variable extent the lower part of second basal cell and extreme base of fourth posterior cell; rest of wings greyish hyaline or faintly smoky greyish, the basal half or part of first submarginal cell, however, always tending to be less infused than the rest of darker anterior half of wings; darker, spot-like infusions evident on apical cross veins of basal cells, at base of vein between discoidal and third posterior cells and at base of vein between submarginal cells; veins dark blackish brown and the alular part subopaquely yellowish; basal comb moderately developed; first posterior cell narrowed apically, more or less sub-spindle-shaped even though broadly open apically, much shorter than discoidal cell; middle cross vein near apex of discoidal cell, its distance from apex of the latter slightly shorter than, or subequal in length to, apical cross vein of discoidal cell; the latter subacute apically; alula and axillary lobe somewhat reduced and narrowish; squamae subopaquely yellowish, yellowish-bordered, fringed with almost whitish hair; knobs of halteres very pale and almost white. Head with the interocular space in front of ocellar tubercle in 3 narrow, only about as broad as front ocellus; space on vertex in Q a little more than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly in Q; face slightly convex medially; antennal joint 3 broadened bulb-like basally, more rapidly narrowed below from broadened part, the slender part about  $1\frac{1}{3}$  to nearly 2 times length of bulb; proboscis projecting beyond buccal cavity to even beyond level of antennal joint 2, its labellar lobes narrowish and pointed; palps subequal in length to or only slightly longer than antennal joint 3. Legs with about 3-7 spines on lower anterior aspect of middle femora; hind femora with about 4-7 spines on outer lower aspect, with some spinelets on upper outer aspect and

with 3 or 4 longer ones apically above; basal joint of front tarsus in  $\mathcal P$  without very long bristly spicules below. Hypopygium of  $\mathcal P$  differs from that of salticola (cf. text-fig. 80) in having less hair on apical parts of basal parts, a more slender aedeagus, a ramus which is more angularly produced on each side of middle part of aedeagal complex and a basal strut which, in profile, is smaller, more rounded and not angularly produced dorsally.

From 11 33 and 11 99 (types in the South African Museum and paratypes in the Durban Museum).

Length of body: about  $6\frac{1}{2}$ -10 mm. Length of wing: about 7-10 $\frac{1}{3}$  mm.

Locality: Basutoland: Mamalapi Mountain (Guillarmod, 27 Dec. 1948) (types); Giant's Castle (Bevis, 25 Feb. 1939 and 16 Feb. 1939); Mahlomolas (Bevis, 14 Feb. 1939); Rafanyane Valley (Bevis, 2 Jan. 1947); Little Bokong River (Bevis, 5 Jan. 1947); Haha-la-Sekhonyana (Guillarmod, 30 Dec. 1946); Likolobeng Mtn. (Guillarmod, 28 Dec. 1948). Natal: Cathedral Peak area, Natal Drakensberg, alt. 7,700 ft. (B. Stuckenberg, 20 March 1955).

Resembles salticola and like the latter it also frequents mountains. From salticola it differs in having denser black hair on antennae below, three or four black prealar bristles, less dense black hair on sides of abdomen, no whitish hair on body below, a more bulb-shaped third antennal joint, narrower interocular space in 33, etc.

# Lomatia conocephala (Macq.)

(Macquart, p. 62, Dipt. Exot., ii, tab. xx, fig. 1, 1840; Bezzi, p. 115, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 146, The Bombyliidae of the Ethiopian Region, 1924.)

As was stated by Bezzi (p. 115, loc. cit.) this species was unrecognizably described by Macquart and can only be identified from his figure of the wing. Bezzi, however, was only acquainted with representatives of one species having the type of wing-infusion figured by Macquart. In the collections before me there is however also another distinct species which has a similar wing-pattern and which may also be referred to conocephala if the wing-infusion be the only criterion. In the absence of any reliable criteria in Macquart's brief description, and in view of the fact that Bezzi has given a description of the specimens which he believed to represent Macquart's species, the specimens belonging to this second species, referred to above, are referred to a separate and new species, and the 33 and 99 before me, which are specifically identical with the specimen labelled by Bezzi (p. 115, loc. cit.) as conocephala, are all provisionally retained in Macquart's species. The species conocephala, as based on the said material, has the following characters:

Body black, apices of antennae usually yellowish or yellowish brownish; proboscis dark castaneous brownish to piceous brownish; tibiae and basal parts of tarsi usually appearing dark, but dark piceous, or reddish brownish, or even

dark yellowish brownish when denuded. Vestiture with the hair on ocellar tubercle, base of frons, sometimes with some sparse or intermixed ones on antennae above and sometimes also with sparse intermixed ones below black; that on rest of frons, antennae below, sides of face and on genae gleaming sericeous whitish to pale sericeous yellowish; that on antennae below, in some QQ especially, with a slight yellowish tint in certain lights; hair on thorax above and on sides in front of wings straw-coloured yellowish to pale sericeous yellowish; bristles on thorax and scutellum entirely pale or very pale sericeous yellowish, without any intermixed dark hairs; hair on abdomen very pale, sericeous whitish on sides, but that discally usually with a faint yellowish tint in certain lights; hair in hinder part of mesopleural tuft, on pleurae, in metanotal tuft and on venter sericeous or snow-whitish, whiter than above; distinct black intermixed bristly hairs present on sides of tergites 2 or 3 to apex, being more conspicuous posteriorly; scaling on body above gleaming very pale to deeper sericeous yellowish, that across hind margins of tergites in narrow linear bands, with black scaling occupying rest of abdominal surface above; that on venter sericeous whitish; scaling on legs greyish whitish to whitish, appearing greyish yellowish on upper and outer parts of femora and on tibiae. Wings more or less dimidiately infuscated as portrayed by Macquart (loc. cit., tab. xx, fig. 1), the brownish to smoky brownish infusion occupying the base, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell, sometimes extreme base of first posterior cell, leaving the rest of wings hyaline or very slightly greyish hyaline, only the greater part of second basal cell and

sometimes upper part of discoidal cell being slightly tinted more greyish; a brownish spot-like infusion present on apical cross vein of second basal cell and to a much lesser extent at base of vein between discoidal and third posterior cells; costal cell usually slightly more subopaquely vellowish whitish than brownish in certain lights; alular part also more subopaquely whitish; veins yellowish brownish to coffee-brownish, the first vein, base of third and basal parts of other veins tending to be paler yellowish brownish; basal comb moderately developed; first posterior cell subspindle-shaped, distinctly narrowed apically; base of vein between submarginal cells sometimes tending to be bent down at right angles; middle cross vein at about, or a little Text-Fig. 82. Side more or a little less than, apical fifth of discoidal cell; the latter subacute to acute apically; alula and axillary lobe moderately developed; squamae opaquely whitish, yellowish-bordered, white-fringed; knobs of halteres very



view of hypopygium and dorsal view of right beaked apical joint of & Lomatia conocephala (Macq.).

pale to almost whitish. Head with eyes in 3 on vertex separated by ocellar tubercle, the space in front of it, at narrowest part, as wide as, or a little broader than, front ocellus; interocular space in 2 about, or a very little more than, 2 times distance between outer margins of posterior ocelli; from slightly depressed anteriorly, the hair anteriorly leaving only a small medial area bare; face slightly convex medially; antennal joint 3 broadened club-like or bulb-like basally, its apical half at least slender; proboscis projecting beyond buccal cavity to level of base of antennal joint 3, its minutely spinulated labellar lobes narrow, elongate and pointed apically. Legs without any spines on front femora below; middle femora with about 2–6 spines on anterior lower part and sometimes with 1–4 on posterior apical aspect; hind ones with about 4–7 spines outwardly below from just before middle to apex, with some spinelets on outer and upper parts and with 3 or 4 apical spines above; basal joint of front tarsi in  $\mathcal P$  without any distinct and conspicuous bristle-like spicules below. Hypopygium of  $\mathcal P$  (text-fig. 82) with the beaked apical joints tending to be narrowish and the lateral struts and basal strut rather well developed; hairs towards apices of basal parts moderately developed.

In the Deutsches Entomologisches Institut, the Transvaal, Natal and South African Museums.

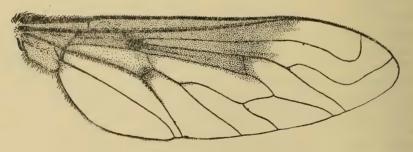
Length of body: about  $8\frac{1}{2}$ -12 mm. Length of wing: about 9-12 mm.

Locality: Eastern Cape Province, Orange Free State and Transvaal.

## Lomatia septoptera n. sp.

This species is very similar to *conocephala*, having an identical type of wing-infusion, but may be distinguished by the following characters:

Vestiture with the hair on antennae above entirely black, that on antennae below also predominantly black or in both sexes with more numerous and more conspicuous black hairs; hair on thorax and abdomen above gleaming distinctly more sericeous whitish, not contrasting much with the snow-whitish ones on



Text-fig. 83. Wing of & Lomatia septoptera n. sp.

pleurae and venter, only that on each side in front of wings and in mesopleural tuft having a slight yellowish tint due to presence of intermixed golden yellowish or even reddish golden bristly hairs; fine, reddish golden, gleaming hairs also on disc of thorax; distinct intermixed black bristly hairs and bristles present on thorax in front and on sides in front of wing-bases and on scutellum; prealar,

postalar and scutellar bristles also black; bristly hairs in metanotal tuft also predominantly black; hair on sides of abdomen distinctly and more conspicuously tufty, more shaggy and longer, the black bristly hairs or bristles on sides of tergite 2 to apex distinctly denser, more numerous, more conspicuous and more in form of dense black tufts in both sexes, hairs on sides of last two tergites appearing more whitish; pale scaling on abdomen above, especially that in form of narrow transverse bands across hind margins of tergites, distinctly more yellowish, more golden to reddish golden than in conocephala; yellowish-tinted scaling on outer and upper parts of femora and on tibiae slightly more intense. Wings (text-fig. 83) very similarly infused, the infusion occupying the same area, but tending to be slightly darker and more uniform; first posterior cell similarly narrowed apically; middle cross vein varying in position from about a little less than apical fourth to a little less than apical fifth of discoidal cell; the latter slightly more sharply pointed apically. Head with the narrow interocular space in front of tubercle in 3 also about as broad as width of front ocellus, but slightly longer; interocular space in ♀ also about, or a little more than, 2 times distance between outer margins of posterior ocelli; proboscis projecting to the same extent, but with distinct fine hairs below, its labellar lobes also elongate and pointed apically, their spinules however slightly more conspicuous. Legs usually with about 1-5 spines anteriorly below on front femora and with some spinelets on outer upper part; middle femora with about 4-7 spines anteriorly below;

hind ones with about 5-7 spines on outer lower part, some irregularly disposed spinelets on outer and upper parts and a few longish apical spines above; basal joint of front tarsi in Q with some distinct, longish, bristle-like spicules below towards apical part, these however much shorter than the joint itself. *Hypopygium* of Q (text-fig. 84) with the neckregion of basal parts, especially laterally, covered with some coarse punctures; lateral struts tending to be broadish; beaked apical joints narrowish (see dorsal view to the right)

From 1  $\circlearrowleft$  and 2  $\circlearrowleft$  (holotype in the South African Museum and allotype in the Transvaal Museum).

Length of body: about 10-11½ mm. Length of wing: about 10-13 mm.

Locality: Orange Free State: Smithfield (Kannemeyer, Sept. 1910) (holotype). Karoo: Willowmore (Brauns, April 1922) (allotype). South-eastern Karoo: Resolution in the Albany District (Walton, April 1927).



TEXT-FIG. 84. Side view of hypopygium and dorsal view of beaked apical joint of & Lomatia septoptera n. sp.

## Lomatia conicera n. sp.

Body black; proboscis dark piceous brownish; legs very dark piceous blackish, the femora almost black, but tibiae more dark piceous reddish. Vestiture with the hairs on front half of frons in  $\delta$ , on less than front half in  $\varphi$ , most of those

on antennae below in both sexes, those on sides of face and genae silvery white; most of the hair on thorax and scutellum above, postalar and scutellar bristles. dense hairs in mesopleural tuft, on pleurae and prosternal part, coxae, sides of tergites 1-2, in part on 3, on venter, especially on sides (or extreme inflexed sides of tergites), and hairs on femora snow-white; hairs on ocellar tubercle, more than basal half of frons in  $\mathcal{Q}$ , basal half in  $\mathcal{E}$ , fine ones on antennae above, numerous ones on antennae below in both sexes, extreme front part of collar above, intermixed bristly hairs on sides of thorax in front of wings, especially in  $\mathcal{Q}$ , some longish ones discally across base of thorax, prealar bristles in  $\mathcal{Q}$  and dense hairs on sides of tergites from 3-7 (or 8) (denser posteriorly) in both sexes black; fine, sparse scaling on disc of thorax and scutellum and more or less narrowly across hind margins of tergites pale brassy to golden yellowish, becoming more silvery posteriorly; rest of fine scaling on abdomen above black; scaling on venter dense, especially across hind margins of sternites, snow-white; scaling on legs mainly snow-white, with some dark ones towards apices of femora, especially hind ones. Wings greyish hyaline, but with the base, costal cell, basal halves of marginal and first submarginal cells and entire first basal cell in both sexes infuscated dark smoky brownish or blackish brown, even the second basal cell and extreme upper part of discoidal cell (just below fourth vein) faintly tinged, with the dark anterior infuscation ending rather truncately across level of apex of first basal cell as in septoptera and conocephala; veins very dark brown to blackish brown; second vein much recurved apically; base of upper branch of cubital fork showing an indication of a stump; first posterior cell subequal in length to discoidal cell; the latter subacute apically, its apical vein almost straight or only very slightly sinuous; middle cross vein at about or a very little more than apical fourth of discoidal cell; axillary lobe broadish and alula also well developed; squamae yellowish whitish, white-fringed; halteres yellowish, their knobs yellowish whitish. Head with the interocular space in front of ocellar tubercle in 3 narrow, only about as broad as front ocellus and a little longer than tubercle; space on vertex in Q a very little more than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly, the middle part free of hairs; antennae with joint 1 about twice length of 2, joint 3 elongate-conical, gradually tapering from broad base, but very slightly more so below, the apical part not slender; proboscis projecting a little beyond buccal cavity, shining in basal half, its labellar lobes shortish, oval, shorter than antennal joint 3. Legs without spines on front femora; middle ones with 1 spine anteriorly a little beyond middle; hind ones with about 3 or 4 spines on outer lower part and some apical ones above. The hypopygium of the single &-specimen has not been dissected out.

From a  $\Im$  (much denuded) and a  $\Im$  in the South African Museum.

Length of body: about  $7\frac{1}{2}-8\frac{1}{2}$  mm. Length of wing: about  $8\frac{1}{2}-9$  mm.

Locality: Koup Karoo: Dikbome in the Laingsburg Div. (Zinn, April-May 1950).

This species can only be confused with *septoptera* which has a similar wing-infuscation. From the latter it, however, differs in having distinctly more conical third antennal joints which do not taper to a very slender part, in having no yellowish bristles in mesopleural tuft, no black hairs on sides of tergite 2, less dense black hair on antennae below, darker legs and slightly less extensive anterior infuscation in wings which does not encroach upon base of first posterior cell and cubital fork.

### Lomatia stenometopa n. sp.

Body black; proboscis and femora very dark blackish brown, the tibiae slightly paler, more dark reddish brownish. Vestiture with the hairs on broad

frontal part, to a large extent on antennae below, on sides of face and genae gleaming sericeous whitish; hair on basal part of frons, antennae above and some intermixed ones on antennae below black; hair on thorax, scutellum and abdomen above whitish, appearing more pale creamcoloured yellowish in certain lights; that on body below sericeous or snow-whitish; prealar and all other bristles on thorax pale yellowish; hair on sides of abdomen sericeous whitish on sides of tergites 1 and 2 and to a great extent on 3, but the pale ones on sides posteriorly gleaming more pale sericeous yellowish in certain lights; sides of tergite 3 with black intermixed hairs and more dense and tuft-like black ones on sides of 4-8; hair on venter white; pale scaling above, where indicated, gleaming pale sericeous yellowish; that on venter more sericeous whitish; that on legs predominantly whitish. Wings strongly developed, for the greater part glassy hyaline, iridescent, the base, alula, costal cell, more than



TEXT-FIG. 85. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lonatia stenometopa n. sp.

basal half of marginal cell, entire first basal cell and even extreme base of first posterior cell coffee-brownish; spot-like infusions present on apical cross veins of basal cells; veins dark brownish; basal comb moderately developed; first posterior cell tending to be slightly narrowed apically, but still broadly open, tending to be subequal in length to discoidal cell; the latter subacute to almost acute apically, its apical vein sinuous; middle cross vein at less than apical third to almost apical fourth of discoidal cell; alula rather well developed for this genus, its lobe at base of axillary lobe broad and rounded; axillary lobe also broadish and rounded at base; squamae opaquely whitish, yellowish-bordered, fringed with white hair; halteres yellowish, their knobs very pale yellowish. Head with the interocular space in front of ocellar tubercle in  $\delta$  very narrow, only as broad as narrow front ocellus, the inner margins of eyes almost contiguous for quite a long distance, at least  $1\frac{1}{2}$  times length of tubercle, the latter itself narrowish; frons rapidly broadening anteriorly, not visibly depressed anteriorly; face slightly convex medially; antennal joint 3 gradually narrowed

from a broadened base, thus club-shaped; proboscis projecting much beyond buccal cavity, with some distinct fine hairs below, its labellar lobes elongate, narrowish and pointed apically. Legs with 2 or 3 spines on middle femora; middle ones with rather dense white hairs on lower apical half; hind femora with about 6 or 7 spines from just before middle on outer lower part and about 2 apical ones above. Hypopygium as shown in text-fig. 85.

From 2 33 (one unfortunately without a head) in the South African Museum.

Length of body: about 8-11 mm.

Length of wing: about  $8\frac{1}{2}$ -11 $\frac{1}{2}$  mm.

Locality: Karoo: Murraysburg Dist. (Mus. Exp., March 1931) (type). Koup Karoo: Dikbome in Laingsburg Div. (Zinn, April-May 1950).

Recognized and distinguished from most other species by the very narrow and rather long interocular space in front of tubercle, narrowish ocellar tubercle and broad alula. From varieties of *pulchriceps* it may at once be distinguished by the broad alula, narrow interocular space, etc.

### Lomatia pedunculata n. sp.

Body black; femora also dark or black, the tibiae slightly paler. Vestiture with the hairs on greater part of frons and on antennae above and below black; those on sides of frons anteriorly, intermixed ones on antennae below and those on sides of face and genae sericeous whitish; hair on body above mainly sericeous yellowish to yellowish, that in collar, propleural part, upper anterior part of mesopleural tuft more yellowish or golden and with numerous black hairs intermixed on thorax above, notopleural part, in mesopleural tuft and on scutellum; prealar, postalar and scutellar bristles also black; hair on body below, pleurae, hinder part of mesopleural tuft, sides at base of abdomen and on venter distinctly more whitish to sericeous white; hairs on sides of tergite 2 behind and densely intermixed on sides of 3-8 black; fine hairs on femora whitish; fine, hair-like scaling on thorax and scutellum above and those rather broadly across hind margins of tergites brassy yellowish; that on venter silvery whitish; scaling on legs yellowish, more whitish on lower surfaces of femora and hinder surfaces of tibiae. Wings rather narrowish, appearing as if stalked or pedunculate, greyish hyaline, but the base, costal cell, more than basal half of marginal cell, to a fainter extent basal half of first submarginal cell and more deeply the entire first basal cell infuscated yellowish brownish; very distinct and darker spot-like infuscations also present on cross veins and at base of third posterior cell; axillary lobe much reduced, very narrow, shortish, its hind margin only feebly curved; anal cell also very narrow, elongate; discoidal cell much longer than first posterior cell, its apical vein almost straight, slightly oblique; first posterior cell not sub-spindle-shaped, broadly open; middle cross vein very near end of discoidal cell, the distance between it and apex of cell being subequal to or a little shorter than apical cross vein of the cell; base of upper branch of cubital fork with a distinct appendix; squamae pallid, whitefringed; halteres pallid, their knobs pale yellowish whitish. Head with the interocular space in front of ocellar tubercle in  $\delta$  only a little wider than front ocellus; antennal joint 3 broadened bulb-like basally, more rapidly narrowed below, the slender part about twice length of bulb; proboscis projecting a little beyond buccal cavity, its labellar lobes much shorter than basal part, rather bluntly pointed apically; palps much longer than antennal joint 3. Legs with about 4 spines on anterior part of middle femora; hind ones with about 3 spines below in apical half, small spinelets along upper outer surface and a few longer apical ones above.

From a single &-specimen in the South African Museum which has not been dissected to show the hypopygium.

Length of body: about  $8\frac{1}{2}$  mm. Length of wing: about 9 mm.

Locality: Basutoland: Rafanyane Valley (Bevis, 2 Jan. 1947).

This species which belongs to the *oreophila*, *conocephala* and *septoptera*-series may be easily recognized by its pedunculate wings, markedly narrow axillary lobe and anal cell, broad first posterior cell and numerous intermixed black bristly hairs in mesopleural tuft and on thorax and scutellum above. In the latter respect it resembles *septoptera*, but is at once distinguished by its narrower, almost stalked wings, clearer basal half of first submarginal cell, more yellowish hair on body above, more bulb-shaped third antennal joints, etc. The reduced axillary lobe and anal cell, less spindle-shaped first posterior cell, black intermixed hairs on thorax and scutellum and in mesopleural tuft, broader transverse bands of scaling on tergites and paler yellowish hair on body above distinguish it from *oreophila* which it resembles superficially.

#### Section 2

In this section the wings are much clearer, less infuscated or tinged, usually predominantly hyaline; knobs of halteres pale; hair on sides of body, especially abdomen, similarly coloured in both sexes, not differentiated in 33.

## Lomatia stenoptera n. sp.

Body black; buccal rim, proboscis, palps and sometimes to a certain extent also facial part and third antennal joints castaneous brownish; legs castaneous brownish to dark piceous brownish, the tibiae, especially when denuded, paler, more yellowish. Vestiture with the hair rather dense, longish and shaggy, especially on sides of abdomen; hair on ocellar tubercle, on more than basal half of frons and along sides of frons anteriorly, predominantly on antennae above and below, numerous intermixed ones on sides of genae, especially along lower parts, longish ones discally and on sides of thorax in front of wings, prealar bristles and longish intermixed hairs on extreme sides below on tergites 2–7 (or 8) black; hair on frons in front, especially in  $\delta$ , conspicuously silvery or snow-whitish; a few intermixed pale yellowish or whitish ones present on

antennal joints 1 and 2 below; pale hairs, where present on sides of face and genae, gleaming yellowish; rest of hair on sides of thorax, pleurae and on abdomen above and on sides pale golden to deep golden yellowish, tinted even slightly orange golden on sides of body in 3; postalar hairs and those on disc and hind borders of scutellum also golden yellowish; hair-like scaling on sides of head gleaming golden; that on disc of thorax and scutellum golden yellowish. more reddish golden antero-laterally and basally on thorax; scaling on abdomen above also golden, but more reddish golden across hind margin of tergite 1, dense only as narrow bands across hind margins of tergites; scaling on venter also yellowish, slightly paler than above; flattened scaling on legs predominantly yellowish, appearing more greyish yellowish to yellowish whitish on lower lateral part of femora. Wings rather narrowish, small, their bases narrow; membrane markedly wrinkled and microtrichiae along hind border relatively conspicuously developed; wing itself greyish hyaline or with a slight greyish subopacity evident, iridescent; base, costal cell and basal half of first basal cell in ♂ and in ♀ also apical half of first basal cell and basal half of marginal cell tinged subopaquely yellowish to yellowish brownish or even brownish; veins reddish brownish to dark reddish brown; basal comb vestigial; first posterior cell elongate, longer than discoidal cell, not narrowed apically, even appearing broader apically, its sides subparallel; middle cross vein at a point between a little less than apical third to a little more than apical fifth of discoidal cell; the latter subtruncate to subacute apically, its apical vein straight; anal cell not narrowed, but broadened and very broadly open apically; axillary lobe narrow, much reduced; alula vestigial; squamae opaquely yellowish, darkbordered, fringed with yellowish hairs; halteres yellowish brownish, with pale yellowish knobs. Head with the interocular space in front of tubercle in 3 only slightly narrower or about as broad as front part of tubercle; space on vertex in Q a little less than 2 times distance between posterior ocelli; from brilliantly shining in Q, distinctly transversely depressed anteriorly and to a certain extent also medially in front, less depressed in 3, with the silvery hairs anteriorly dense and patch-like in ♂ and in two tufts in ♀; antennal joint 3 broadened bulb- or club-like basally, more so below; proboscis projecting beyond buccal cavity, slender, its labellar lobes narrow, elongate, pointed apically. Legs with 1 longish spine on anterior part of middle femora; hind ones with I spine on outer subapical part and about 2 shorter ones apically above; basal joint of front tarsi in  $\mathcal{Q}$  with some longish, bristle-like spicules below towards apex. Hypopygium of of with the basal parts rather narrowish, their outer apical angles not prominent; beaked apical joints relatively broadish; lateral struts somewhat pointed apically.

From 7 33 and 5 99 (holotype in the British Museum, allotype in the Commonwealth Institute and paratypes in the South African Museum).

Length of body: about  $4\frac{1}{2}$ -6 mm. Length of wing: about  $4\frac{1}{2}$ -6 mm. Locality: Natal: Weenen (Thomasset, March-April 1924 and Jan. 1925 (holotype)); Weenen (Thomasset, March 1925); Ingogo (Mackie, March 1932 (allotype)); Ingogo (Ogilvie, March 1932).

Characterized by its small size, golden hair, black hairs on disc of thorax, narrowish wings with wrinkled membrane, much reduced axillary lobe and alula and the rather broadly open anal cell. One 3-paratype in the Union Agricultural Department was labelled as *pulchriceps* Lw. by Brunetti. This identification is however erroneous for the latter species has no black hairs on thorax above, has better developed wings, a less wrinkled membrane, a comparatively shorter first posterior cell, etc.

### Lomatia thysanomela n. sp.

Body black; proboscis and legs dark castaneous brownish, the tibiae sometimes paler than femora, more reddish brownish. Vestiture with the hairs on basal part of frons, on each side of frons anteriorly in 3, on antennae above, intermixed ones on antennae below in \( \begin{aligned} \text{, dense tufts on antennae below in } \begin{aligned} \delta, \delta \text{.} \end{aligned} \) hair on lower part of genae in both sexes, intermixed bristly hairs on thorax, especially sides, some stoutish prealar bristles, postalar and scutellar bristles and conspicuous dense tufts on sides of tergites 2-7 (or 8) black; black hair on sides of thorax in Q tending to be denser and more conspicuous than in 3; dense hair anteriorly on frons silvery whitish, denser, less extensive, shorter and more tuftlike in 3; antennae below with more numerous whitish or pale sericeous ones in Q, whiter and more tuft-like ones on outer lower part in 3; hair on upper parts of genae and intermixed ones on lower parts whitish or very pale sericeous yellowish in both sexes; hair on body above sericeous to golden yellowish; that on sides of abdomen and to a certain extent discally in 3 tending to be more whitish; that on sides of tergite 1 in Q yellowish; that on pleurae only slightly paler than above and that on venter whitish; scaling above gleaming golden to deep golden yellowish, those transversely across abdomen in narrow bands; scaling on legs greyish yellowish to dull yellowish, sometimes appearing greyish whitish. Wings hyaline, iridescent, but with the base, costal cell, extreme base of marginal cell and basal half of first basal cell in 3 and also basal half of marginal cell, base of first submarginal cell to a variable extent and entire first basal cell in ♀ yellowish brownish to brownish; indications of spot-like infusions present on apical cross veins of basal cells; first posterior cell shorter than discoidal cell, broadly open, only very slightly narrowed apically; middle cross vein at a little less than apical fourth to apical fifth of discoidal cell; the latter acute apically; alula and axillary lobe normally reduced; squamae subopaquely yellowish, fringed with very pale hairs; halteres yellowish brownish, with almost white knobs. Head with the interocular space in front of ocellar tubercle in 3 about as wide as narrow front part of tubercle; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons visibly depressed anteriorly in 9; antennal joint 3 bulb-shaped basally, the basal part below

more rounded, more rapidly narrowed; proboscis projecting much beyond buccal cavity, its lower surface finely striate, its labellar lobes narrowish,

pointed apically. Legs with about 3–4 or 5 spines on anterior lower part of middle femora; hind ones with about 4–5 spines in apical half on lower outer part and 2 or 3 apical ones above; basal joint of front tarsi in  $\mathcal{P}$  with some longish bristly spicules towards its apex. Hypopygium of  $\mathcal{J}$  as shown in text-fig. 86.

From 4 33 and 3 99 (types in the South African Museum, paratypes in the Albany and Transvaal Museums).

Length of body: about  $7\frac{1}{2}-8\frac{1}{2}$  mm. Length of wing: about 8-9 mm.

Locality: Eastern Cape: Resolution, Grahamstown in Albany Div. (Walton, Jan.-April 1928 (holotype)); Resolution (Walton, 1930) (allotype); Resolution (Walton, 14 March 1928); Fort Brown (Walton, 7 March 1930); Umdala, Fort Beaufort (S.A.M., March 1954).



Text-fig. 86. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia thysanomela n. sp.

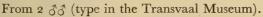
Differs from the preceding species, to which it has some resemblance, in being slightly larger, in having more pale hairs on sides of face and genae, denser and more conspicuous black hairs on sides of abdomen, slightly more onion-shaped base of antennal joint 3, broader wings, etc.

## Lomatia desmophora n. sp.

This species, which is only represented in the male sex in the collections before me, differs from 33 of thysanomela which it superficially resembles in the following respects:

Vestiture with the hair on body similarly coloured, but with the patch of silvery white hairs on frons anteriorly distinctly larger, more tuft-like, more extensive; black hair on basal part of frons does not extend down sides of frons on each side; hair on lower outer part of antennal joint I distinctly tinted yellowish or more golden yellowish, not whitish; that on sides of genae predominantly yellowish or sericeous yellowish, without any black ones lower down as in thysanomela; hair on disc of thorax with distinctly more numerous black bristly ones and also with more numerous black hairs on disc of scutellum; hair on abdomen above distinctly tinted more sericeous yellowish or golden, the black ones on sides of tergites apparently less dense, sparser, less conspicuously tufty, sparser and less conspicuous on sides of tergites 2 and 3; pale hair on venter tinted more yellowish; scaling above denser, more reddish golden and concentrated in very much broader bands on abdomen above which occupy at least apical halves of tergites. Wings similarly infused with pale

yellowish brownish at base, costal cell and basal part of first basal cell; first posterior cell even more broadly open apically; discoidal cell distinctly more truncate apically, its apical vein more oblique; middle cross vein at about between apical sixth and seventh of discoidal cell; indications of spot-like infusions on apical cross veins of basal cells absent. Legs with about 2–4 spines on middle femora and about 3 on lower outer apical part of hind ones. Hypopygium (text-fig. 87) with the basal part rather narrowish, with rather longish and conspicuous hairs on their apical parts and their outer apical angles not very prominent; ramus on each side from basal parts to aedeagal complex produced spine-like along its anterior edge (see figure to the right).



Length of body: about  $7-7\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}-8$  mm.

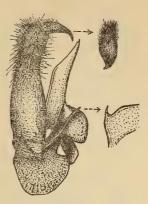
Locality: South-western Cape: Somerset West Strand (Brauns, 25 Nov. 1925).



(Loew, p. 208, *Dipt. Faun. Südafr.*, i, 1860; Bezzi, p. 116, *Ann. S. Afr. Mus.*, xviii, 1921.)

A number of specimens before me agree very well with Loew's description of this species. From Bezzi's brief references to *latiuscula* (p. 116, loc. cit.) it is impossible to state whether the specimen from Grahamstown to which he refers is the same species as this. The following supplementary description of *latiuscula* may be added to that of Loew:

Body black; apices of third antennal joints yellowish; proboscis and femora dark castaneous brownish; apical parts of femora and entire tibiae yellowish or yellowish brownish, the femora however sometimes entirely dark, sometimes tending to be nearly as pale as tibiae. Vestiture with the hair on front part of from, on sides of antennae below in 3 and almost entirely in 2 and that on sides of face and genae sericeous whitish; that on basal half of frons, on antennae above, densely on inner lower parts of antennae in 3 and more sparsely in 2 black; that on body above predominantly pale sericeous yellowish or strawcoloured yellowish, more sericeous whitish on sides of abdomen basally; hair on upper hinder part of mesopleuron in form of a conspicuous whitish tuft; that on propleural part tinted pale sericeous yellowish and that on rest of pleurae more whitish; hair on venter also gleaming whitish; numerous intermixed bristly hairs on disc of thorax and on its sides, the prealar, postalar and scutellar bristles black; tufts of fairly dense black hairs also present on sides of tergites 2-7 (or 8), those on tergite 2 occupying only the apical part or half; scaling on body above brassy to golden yellowish; that on legs whitish to greyish yellowish,



Text-fig. 87. Side view of hypopygium and and dorsal view of right beaked apical joint of & Lomatia desmophora n. sp.

appearing more yellowish on paler tibiae. Wings predominantly glassy hyaline, iridescent, with the base, costal cell and along anterior basal part of first basal cell however yellowish to pale yellowish brownish in both sexes; veins brownish, slightly paler basally and in infuscated part; basal comb poorly developed; first posterior cell broadly open, sub-parallel-sided, about as long as, or only

a little shorter than, discoidal cell; the latter subtruncate to subacute apically, its apical vein straight; middle cross vein varying in position from a little less than apical fifth to apical fourth of discoidal cell; alula and axillary lobe normally reduced, the latter slightly arcuately rounded posteriorly; squamae subopaquely vellowish, with a whitish fringe; halteres vellowish, with almost white knobs. Head with the interocular space in front of ocellar tubercle in a narrowish, only a little broader than front ocellus; space on vertex in ♀ about or a little less than 2 times distance between outer margins of posterior ocelli; frons transversely depressed anteriorly; antennal joint 3 gradually narrowed from broad base, more leek- or bulb-shaped basally; proboscis projecting much beyond buccal cavity, its labellar lobes narrow and pointed. Legs usually with about 2-3, sometimes 4 or 5, spines on middle femora; hind ones usually with 3, but sometimes also 4 or 5, spines on outer apical



Text-fig. 88. Side view of hypopygium and dorsal view of right beaked apical joint of *3 Lomatia latiuscula* Lw.

part below and with about 2 apical ones above; basal joint of front tarsi in Q with some or a few longish bristly spicules below near apex. Hypopygium of Z as shown in text-fig. 88, with the basal parts rather narrowish.

In the British, Transvaal, Albany and South African Museums.

Length of body: about 6-7 mm. Length of wing: about  $6-7\frac{1}{2}$  mm.

Locality: Southern and eastern Cape and south-eastern Karoo.

Easily recognized by the whitish tuft in front and just below base of wings, the whitish hair on sides of first abdominal tergite, the black intermixed hairs on thorax above and the yellowish tibiae.

# Lomatia berzeliaphila n. sp.

Body black; proboscis dark castaneous brownish; legs very dark, the tibiae tending to be slightly less dark than femora and more castaneous or brownish. Vestiture with the hair on greater part of frons, antennae above and densely below black; that anteriorly on frons, sides of face and on genae and the few intermixed pale hairs on inner lower part and also on sides of antennae sericeous yellowish to pale golden; the somewhat sparse hairs on disc of thorax, the prealar, postalar and scutellar bristles black; some intermixed hairs on thorax above, dense ones on sides and on mesopleuron and on pleurae sericeous yellow-

ish to pale golden; hair on abdomen above and on sides basally gleaming pale sericeous yellowish to slightly golden yellowish, but with the dense, tuft-like, intermixed ones on sides of tergites 2-8 black and also with black, erect, bristly ones on 4-8 above; hair on venter more whitish, more sericeous yellowish on sides below black tufts; hairs on coxae sericeous whitish; scaling on body above deep golden to reddish golden, with the transverse bands across hind margins of tergites fairly broad and conspicuous; scaling on legs appearing greyish whitish to greyish yellowish in certain lights. Wings glassy hyaline, strongly iridescent, with the base, costal cell and nearly basal half of first basal cell subopaquely yellowish to pale yellowish brownish; veins brownish to dark

brownish; basal comb very poorly developed; second vein not very much recurved at end; first posterior cell very broadly open apically, slightly or sometimes distinctly longer than discoidal cell; the latter subtruncate apically, its apical vein straight; middle cross vein at nearly or a little less than apical fourth of discoidal cell; alula and axillary lobe very much reduced, the latter very narrow, almost equally broad throughout; squamae subopaquely yellowish, fringed with almost white hairs; halteres yellowish, with very pale knobs. Head with the interocular space in front ocellar tubercle in 3 only a little narrower than tubercle; from distinctly depressed anteriorly, especially in the middle; antennal joint 3 golf-driver-club-shaped at base, very rapidly nar- Text-Fig. 89. Side rowed from base below; proboscis projecting a little beyond buccal cavity, its labellar lobes tending to be shortish, broadish and ovoid. Legs with about 1 spine on anterior lower part of middle femora; hind ones with 2 spines on



view of hypopygium and dorsal view of right beaked apical joint of & Lomatia berzeliaphila n. sp.

lower outer apical part and 2 apical ones above. Hypopygium of 3 as shown in text-fig. 89, with the beaked apical joints relatively broadish and lateral struts narrowish, tending to be elongate.

From 2 33 in the South African Museum.

Length of body: about 5-5½ mm. Length of wing: about 6-61 mm.

Locality: Southern Cape: Albertinia (Mus. Exp., Nov. 1938).

A smallish species characterized by its golf-driver-club-shaped third antennal joint, black hairs on disc of thorax, much reduced axillary lobe and alula, etc. The specimens were caught on the flower-clusters of a species of Berzelia.

## Lomatia hylesina n. sp.

Body black; proboscis dark blackish brown; legs dark or blackish, the denuded tibiae however dark reddish brownish. Vestiture with the hair on front part of frons and sometimes some intermixed ones on genae sericeous whitish or silvery whitish; that on basal half of frons, antennae above and below and predominantly or entirely on sides of face and genae black; hair on body above, pleurae and venter predominantly sericeous or snow-whitish; that on propleural part and to a certain extent on thorax above with a faint sericeous yellowish tint; intermixed bristly hairs on disc and especially sides of thorax, prealar, postalar and scutellar bristles, some intermixed bristly hairs in metanotal tuft and tufts on sides of tergites 2–8 black; scaling above pale sericeous yellowish, sometimes almost sericeous whitish in certain lights; that on legs greyish whitish to dull greyish yellowish. Wings glassy hyaline, iridescent, the base, costal cell and to a lesser extent base of first basal cell subopaquely pale yellowish brownish; veins dark brownish, the first vein and base of fifth slightly more

yellowish; basal comb very poorly developed; first posterior cell very broadly open, usually slightly longer than discoidal cell; the latter subtruncate to almost truncate apically; middle cross vein at about a little less than apical fourth to nearly apical fifth of discoidal cell; anal cell broadly open apically; alula and axillary lobe normally reduced and to a lesser extent than in preceding species; squamae subopaquely yellowish, fringed with whitish hair; halteres yellowish brownish or yellowish, with whitish knobs. Head with the interocular space in front of ocellar tubercle in 3 narrow, only a little broader than front ocellus, the inner margins of eyes gradually diverging anteriorly from this narrowest part; from scarcely or not depressed anteriorly; face convex medially; antennal joint 3 gradually narrowed from broad base, more rapidly below and thus bulb- or club-shaped; proboscis projecting much beyond buccal cavity to at least beyond level of base of antennal joint 3, its labellar lobes narrow, pointed apically. Legs with about 1-3



TEXT-FIG. 90. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia hylesina n. sp.

spines on middle femora below; hind ones with about 2-3, usually 3, spines on outer lower apical part and about 2 apical ones above. *Hypopygium* of 3 as shown in text-fig. 90.

From 4 33 in the South African Museum.

Length of body: about 5-7 mm. Length of wing: about  $5\frac{1}{2}-7$  mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938).

This species differs from berzeliaphila in having more whitish hair on frons in front, pleurae and abdomen, entirely black hair on antennae below, numerous intermixed black hairs on genae, some intermixed black ones in metanotal tuft, black hairs discally only on last tergite, a more club-shaped antennal joint 3, narrower interocular space, etc.

## Lomatia flavifrons n. sp.

Body black; apices of third antennal joints yellowish; proboscis and legs dark blackish brown or castaneous brownish, the tibiae, when denuded, appearing

more reddish brownish. Vestiture with the hairs on greater part of frons, antennae above and below, sides of face and genae sericeous yellowish to golden yellowish; hair at base of frons to a variable extent black; that on body above and below predominantly sericeous yellowish to golden yellowish; that on pleurae and coxae tending to be slightly paler yellowish than above; prealar, postalar and scutellar bristles yellowish like rest of hair; dark, blackish brown, intermixed hairs present only on sides of tergites 5-8 or even on last tergite only in  $\mathcal{Q}$ ; pale scaling above brassy to golden yellowish, fairly densely and uniformly distributed discally on abdomen, especially in Q, that concentrated in bands across hind margins of tergites narrow, with apparently no black scaling above; scaling on venter also sericeous yellowish to golden; that on legs greyish yellowish to yellowish. Wings glassy hyaline, iridescent, the base, costal cell and basal half of first basal cell in 3 and greater part of first basal cell in 2 subopaquely yellowish; veins yellowish brownish to brown or even dark brownish; basal comb very poorly developed; first posterior cell scarcely narrowed apically, very broadly open, longer than discoidal cell; the latter subacute apically; middle cross vein at about from a little less than apical third

to nearly apical fifth of discoidal cell; alula and axillary lobe slightly developed, the former with the lobe projecting over base of latter distinct and axillary lobe arcuately rounded; squamae subopaquely yellowish, dark-bordered, fringed with yellowish hairs; halteres yellowish, with very pale knobs. Head with the interocular space in front of ocellar tubercle in 3 narrow, about as broad as narrow front part of tubercle; space on vertex in 2 about 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly; antennal joint 3 bulb-shaped at base; face slightly convex medially; proboscis projecting much beyond buccal cavity, its labellar lobes narrowish, pointed apically. Legs with from 2 to 5 spines on middle femora anteriorly below; hind ones with from 2 to 4 spines on outer lower apical part, some spinules on outer upper part and 1 or 2 apical ones above; basal joint of front tarsi in ♀ with longish, bristly spicules below. Hypopygium of 3 as shown in



TEXT-FIG. 91. Side view of hypopygium and dorsal view of right beaked apical joint of *& Lomatia flavifrons* n. sp.

text-fig. 91, with rather longish and conspicuous hairs on apical slender part of basal parts.

From 3 33 and 3 99 (holotype in the South African Museum and allotype in the Transvaal Museum).

Length of body: about 6-9 mm. Length of wing: about 6-9 mm.

Locality: South-eastern Cape: Resolution, Grahamstown (Walton, Jan.-April 1938) (holotype); Grahamstown (Munro, 22 March 1921) (allotype); Umdala, Fort Beaufort (S.A.M., March 1954). Southern Karoo: Willowmore (Brauns, 5 April 1924); Bo-Kouga, Uniondale Dist. (S.A.M., March 1954).



medially; proboscis projecting much beyond buccal cavity, its labellar lobes narrow, elongate, pointed apically. Legs usually with 1 spine on middle femora below and with 2 on lower outer apical part of hind femora; basal joint of front tarsus in  $\mathcal{P}$  without any conspicuous, longish, bristly spicules below. Hypopygium of  $\mathcal{F}$  as shown in text-fig. 92.

Holotype in the Transvaal Museum and allotype in the Commonwealth Institute.

Length of body: about 5-7 mm. Length of wing: about  $5\frac{1}{2}$ - $7\frac{1}{3}$  mm.

Locality: Bechuanaland: Damara Pan (Vernay-Lang Kalahari Exp., 15–21 April 1930) (original ♂-type). Southern Rhodesia: Matopo Hills (Ogilvie, April 1932) (♀-type); Matopo Hills (Mackie, April 1932).

Easily recognized and distinguished from preceding species by the predominantly whitish hair, absence of much black hair on sides of abdomen and markedly broad axillary lobe.

### Lomatia mozambica n. sp.

This clear-winged species resembles both tenera and albata, having certain characters in common with both, yet differing from each. The differences are, however, of such a nature that it cannot be placed as a varietal form of either. With tenera, as defined in this revision, the specimens agree in having black hairs on sides of tergites 5-7 (or 8), entirely sericeous whitish hairs on antennae below and similarly shaped third antennal joints, though the broad base bulges less below, thus more club-shaped than golf-driver-club-shaped. It however differs from tenera in having the interocular space in front of ocellar tubercle in 3 distinctly broader, broader than front ocellus, slightly broader interocular space in Q, a longer proboscis, with an elongate labella, black prealar bristles, pale yellowish hairs on sides of tergites 2-4 in both sexes, a very much broader and markedly broad axillary lobe and in 2 longer, bristly spicules on basal joint of front tarsus below. From albata which it more closely resembles in its antennal, vestitural and wing-characters, it differs in having a stouter proboscis, distinctly broader interocular space in front of tubercle in 3 (at least 1 1 times width of front ocellus), slightly broader interocular space in ♀ (a little more than twice width of tubercle), black hairs on antennae above, black prealar bristles, black hairs on sides of tergites 5-7 (or 8), yellowish hairs on sides of tergites 2-4 in 3, broader and less narrowed first posterior cell, a more bent-up end of second vein, much narrower second posterior cell on hind margin and longer discoidal cell which is subequal in length to first posterior cell and not shorter as in albata.

From 2 33 and 1 2 (types in the South African Museum and paratype in the Museu Dr. Alvaro de Castro, Lourenço Marques).

Length of body: about  $6\frac{1}{2}$ –9 mm. Length of wing: about 7–9 mm. Locality: Portuguese East Africa: Maputo (T. Dias, 17 April 1952) (types); Manhica (Dr. M. Ferreira, 12 April 1949).

### Lomatia leucochlaena n. sp.

Body black; proboscis and denuded femora dark castaneous brownish or blackish brownish; tibiae paler, reddish brownish to pale yellowish brownish. Vestiture with the hairs on head, thorax, abdomen and body below sericeous or snow-whitish; some black hairs on ocellar tubercle and base of frons, but without any black or dark ones on antennae or sides of abdomen; prealar, postalar and scutellar bristles also pale or whitish; scaling above gleaming pale sericeous vellowish on thorax, but more whitish on abdomen; that on legs whitish to greyish white. Wings glassy hyaline, iridescent, the extreme base blackish brown, but the base, alula, costal cell and along anterior basal part of first basal cell subopaquely whitish; veins yellowish; basal comb very poorly developed, in form of sericeous whitish pubescent hairs; first posterior cell scarcely narrowed apically, very broadly open, distinctly longer than discoidal cell; the latter subtruncate apically; middle cross vein at a little less than apical third of discoidal cell; alula and axillary lobe normally reduced; squamae subopaquely whitish, white-fringed; halteres yellowish, with almost white knobs. Head with the interocular space on vertex in Q comparatively broad, quite or almost 2½ times distance between outer margins of posterior ocelli; frons thus relatively broad, the inner margins of eyes only slightly and gradually diverging anteriorly, scarcely or only very slightly depressed anteriorly; face only very slightly convex medially; antennal joint 3 gradually narrowed apically from a broadened base; proboscis projecting only a little beyond buccal cavity, its labellar lobes narrowish, pointed apically. Legs with I spine on middle femora below and usually with 2 spines on outer lower apical part of hind ones; basal joint of front tarsus in Q with a few longish, bristly spicules below.

From 2 99 in the South African Museum.

Length of body: about  $6-7\frac{1}{2}$  mm. Length of wing: about 7-8 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938) (type). Karoo: Victoria West Dist. (Mus. Exp., March 1931).

The paratype from Victoria West appears to be a slight variety which differs from the typical  $\mathfrak P$  in being slightly larger, in having the hair above slightly more straw-coloured whitish, slightly more yellowish prealar and postalar bristles, some distinct dark hairs on sides of last tergite and slightly paler tibiae. This species is easily recognizable by its predominantly white hair and entire, or almost entire, absence of black hairs on sides of abdomen, yellowish brownish or reddish yellowish tibiae, and broad frons. From  $\mathfrak PP}$  of albata it differs in not having antennal joint 3 golf-driver-club-shaped at base, in having a relatively broader interocular space and frons, a shallower frontal depression, paler tibiae, a more reduced axillary lobe, etc.

## Lomatia albulata n. sp.

Body black; proboscis and legs dark blackish brown. Vestiture with the hairs on almost entire frons, antennae above and in 3 numerous intermixed ones on antennae below black; some hairs medially on frons in front, numerous ones on antennae below and on sides of face and genae silvery whitish in 3, but tinted more straw-coloured yellowish in Q; that on antennae below in Qwithout any, or with only a few, dark hairs; hair on body in of gleaming predominantly sericeous whitish above and below, that transversely in collarregion and the tufts of shortish bristly hairs on sides of tergites 2-8 black and hidden by dense white hair on sides of abdomen; hair in ♀-specimen very much denuded, but where still present, also sericeous whitish; scaling above whitish in  $\beta$  and, where indicated, pale sericeous yellowish in  $\mathfrak{P}$ ; that on venter sericeous whitish in both sexes; that on legs predominantly white. Wings glassy hyaline, iridescent, the base, alula, basal part of costal cell up to cross vein and along anterior basal part of first basal cell opaquely yellowish; veins very dark brownish; basal comb almost wanting; first posterior cell narrowish, subparallel-sided, broadly open apically, much longer than discoidal cell; the latter subtruncate to almost truncate apically; middle cross vein at about, or a little less than, apical third of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely yellowish whitish, dark-bordered, fringed with white hair; halteres yellowish, with very pale knobs. Head with the interocular space in front of ocellar tubercle in 3 very narrow, only about as broad as front ocellus; space on vertex in Q distinctly less than 2 times distance between outer margins of posterior ocelli; from scarcely depressed in front, even in \( \text{\text{?}} \); face

not, or only very feebly, convex medially; antennal joint 3 broadened golf-driver-club-like at base, more rapidly narrowed from base below, the slender part relatively stoutish; proboscis projecting much beyond buccal cavity, its labellar lobes short, broad and oval, shorter than antennal joint 3; palps rather small, short, only a little more than half as long as antennal joint 3. Legs with 1 spine on middle femora below; hind ones with 2 or 3 spines on outer lower apical part and about 2 apical ones above; basal joint of front tarsi in  $\mathcal{P}$  without any bristly spicules below, but with the spicules fine and dense, more brush-like and much shorter than those on middle tarsi. Hypopygium of  $\mathcal{J}$  as shown in text-fig. 93, with the dorsal edge of basal strut produced into a rather long process.

From a 3 and 9 in the Transvaal Museum.

Length of body: about  $5-5\frac{1}{2}$  mm. Length of wing: about  $5\frac{1}{2}-5\frac{2}{3}$  mm.

Locality: Transvaal: Pretoria (Munro, 1 Jan. 1916 (♂-type); 10 Nov. 1915 (♀-type)).



TEXT-FIG. 93. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia albulata n. sp.

Easily recognizable by the predominantly white hair and ovate labellar lobes. From albata it differs in having black tufts on sides of tergites 2-7 (or 8), much narrower first posterior cell, much narrower and more reduced axillary lobe, ovate labellar lobes, etc. From tenera Lw. it may be distinguished by the presence of dark hairs on antennae below, much sparser hair on frons, black hairs on sides of tergites 2-7 (or 8), longer proboscis, etc.

### Lomatia canescens n. sp.

Body black; proboscis and legs dark castaneous brownish, the tibiae tending to be paler, more reddish brownish. Vestiture with the hair on sides of frons in front, sides of face and genae, on antennae below in Q, and intermixed hairs on antennae below gleaming sericeous whitish; that at base of frons and on antennae above and densely below (especially in 3) black; that on rest of body predominantly sericeous whitish above and below; that across extreme front margin of thorax very dark brownish and that on sides of abdominal tergites 4-8 black: scaling above, where present, gleaming pale sericeous vellowish: that on venter much denser and white; that on legs white. Wings vitreous hyaline, iridescent, the base, alula and basal part of costal cell up to basal cross vein in both sexes subopaquely whitish to pale yellowish whitish; veins yellowish brownish to brownish; basal comb vestigial; first posterior cell not narrowed apically, its sides subparallel, subequal in length to, or a little longer than, discoidal cell; the latter subtruncate to truncate apically; middle cross vein at a little less than apical third to nearly apical fourth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely whitish, fringed with white hair; halteres pale yellowish, with almost white knobs. Head with the interocular space in 3 in front of tubercle very narrow, only about as broad as

front ocellus; space in  $\mathcal{P}$  about 2 times distance between outer margins of posterior ocelli; frons depressed in front, the depression free of hairs medially; face very slightly convex medially; antennal joint 3 gradually narrowed (even more so in  $\mathcal{P}$ ) from broad base, club-like basally; proboscis projecting slightly beyond buccal cavity, its labellar lobes narrowish, pointed apically. Legs with 1 or 2 spines on middle femora anteriorly below; hind ones with 2 or 3 spines on outer lower apical aspect and 1 or 2 apical spines above. Hypopygium of  $\mathcal{F}$  (text-fig. 94) with the beaked apical joints rather narrowish; lateral struts projecting horizontally; basal strut with its dorsal edge not produced much, and with a distinct triangular ledge-like or flange-like process on each side laterally near base (see ventral view on right-hand below).

From 2 33 and 1 denuded Q in the South African Museum.



TEXT-FIG. 94. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of basal strut of & Lomatia canescens n. sp.

Length of body: about  $6-6\frac{1}{2}$  mm. Length of wing: about  $6-6\frac{1}{2}$  mm.

Locality: South-West Africa: Kaoko Otavi in the Kaokoveld (Mus. Exp., March 1926) (holotype); Kamanjab (Mus. Exp., Jan. 1925) (allotype); Grootfontein in Damaraland (Lightfoot, Dec. 1918) (labelled by Bezzi as tenera Lw.).

This species is chiefly characterized by its predominantly white hair. From species, such as *tenera* and *albulata*, which are also predominantly white-haired, it differs in having more black hair on antennae below in 3. From the former it differs also in having black hair on sides of tergite 4 and a more elongate or narrowish labella. From *albulata* it may further be distinguished by its more club-like third antennal joints and absence of black hair on sides of tergites 2 and 3 below.

### Lomatia bembesiana n. sp.

A somewhat denuded specimen in the collections is very near canescens, but differs in the following respects: Vestiture with the hair on antennal joints 1 and 2 below entirely or predominantly black. Wings with the base, including alula, the entire costal cell and along anterior basal part of first basal cell opaquely yellowish; first posterior cell slightly, but distinctly, narrowed apically; discoidal cell distinctly more acute apically, its apical cross vein more parallel to hind border of wing; middle cross vein at only a little less than apical fourth of discoidal cell; alula and axillary lobe slightly more reduced, the latter thus appearing narrower; knobs of halteres deeper yellowish above. Head with the interocular space in 3 distinctly broader, broader than front ocellus, quite as broad as length of antennal joint 2; frons less, or scarcely, depressed anteriorly; antennal joint 3 broadened more bulb-like basally. Legs with the spicules on tibiae, especially hind ones, slightly longer and more strongly developed. Hypopygium resembles that of canescens (cf. text-fig. 94), but the outer apical angles of basal parts distinctly more prominent and angularly produced; lateral struts slightly longer and the shallow indentation in dorsal margin of basal strut slightly deeper.

From a 3 in the Transvaal Museum.

Length of body: about 7 mm. Length of wing: about 7 mm.

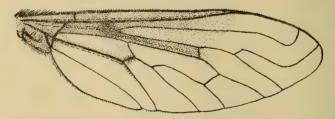
Locality: Southern Rhodesia: Bembesi (Stevenson, 22 Dec. 1926).

## Lomatia pulchriceps Lw.

(Loew, p. 206, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 148, The Bomby-liidae of the Ethiopian Region, 1924.)

This species appears to be very widely distributed and to be fairly common in the non-arid parts of Southern Africa and, judging from the large number of specimens in the various collections before me, it is very variable in characters such as the extent and intensity of the wing-infuscation, especially in QQ, the presence or absence of black prealar bristles and the extent to which black bristly hairs are present on antennae below and on sides of abdomen. There appears to be no doubt that several more or less distinct varietal or local forms are thus found in various parts of the country. As the specimens examined by me agree in essentials with the description given by Loew, there appears to be no doubt that they do represent Loew's species. A more comprehensive supplementary description of this species and notes on at least three distinct varietal forms are as follows:

Body black; proboscis and legs very dark castaneous brownish or blackish brown. Vestiture with the hairs on frons anteriorly, outer lower aspect of antennae, sides of face and predominantly or entirely on genae silvery or sericeous whitish, but sometimes with that on sides of antennae and face very slightly pale sericeous yellowish; hair on frons anteriorly conspicuous and appearing as silvery tufts; that at base of frons, on antennae above and, especially in 3, also densely below and often some intermixed hairs on lower parts of genae in some 33 and usually those on upper and outer parts of palps black; hair on body above and below rather dense and somewhat shaggy, predominantly sericeous yellowish, brassy yellowish to deep golden yellow; that on pleurae not or scarcely paler than above; that on venter may appear slightly paler in certain lights; that in mesopleural tuft sometimes appearing slightly deeper golden than rest of hair; at least two prealar bristles and conspicuous tufts on sides of tergites 2-7 (or 8) black, with these black tufts posteriorly and on last tergite very dense in some forms, but less dense in others; scaling above gleaming deep sericeous yellowish to deep golden yellowish, especially in Q where the concentrated scaling across hind margins of tergites is also denser, more conspicuous and broader, especially on sides; scaling on venter paler



Text-fig. 95. Wing of Q Lomatia pulchriceps Lw.

sericeous yellowish or whitish; that on legs greyish whitish, greyish yellowish to dull yellowish, that on upper and anterior outer surfaces appearing more yellowish. Wings (text-fig. 95) very faintly to distinctly greyish hyaline, sometimes almost hyaline, iridescent, with usually the base, costal cell and more or less basal half of first basal cell in 3 and in addition also basal half of marginal cell, to a lesser extent the base of first submarginal cell and entire or almost entire first basal cell in 9 yellowish brownish to pale coffee-brownish; the

infusion in some 33, however, also occupying base of marginal cell and entire first basal cell and in some 99 fairly uniform and extensive, giving the wings a dimidiate appearance; veins brownish to dark brownish or even blackish brown, the first and fifth main veins, however, more yellowish; basal comb poorly developed; first posterior cell not or scarcely narrowed, broadly open, apically, its sides tending to be more subparallel in 2 than in 3, shorter than discoidal cell; the latter subtruncate, subacute, or even acute apically; middle cross vein varying in its position from a little less than apical third to apical sixth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely yellowish, dark-bordered, fringed with yellowish hair; halteres yellowish, with very pale knobs. Head with the interocular space in front of ocellar tubercle in 3 about as broad as length of antennal joint 2, or twice as broad as front ocellus; space on vertex in Q a little less than, or about, 2 times distance between outer margins of posterior ocelli; from shallowly depressed anteriorly, especially in Q; face distinctly convex medially, appearing slightly subconically prominent apically; antennal joint 3 gradually narrowed from broad base, more so below, thus more or less club-shaped basally; proboscis appearing relatively long and slender, projecting much beyond buccal cavity, sometimes even to beyond antennae, its labellar lobes long, narrow, pointed, with minute spinules usually visible on base below and coarser ones on labella. Legs with from 2 to 4 spines on anterior lower part of middle femora; hind ones also with

from 2 to 4, more frequently 3, spines on outer lower apical part and about 2 or 3 apical ones above; basal joint of front tarsi in  $\mathcal{P}$  with distinct longish bristle-like spicules below. Hypopygium of  $\mathcal{F}$  (text-fig. 96), usually with rather numerous and conspicuous longish hairs on neck region of basal parts; lateral struts well developed and broadish; basal strut with its dorsal edge sharply produced to a variable extent, rather more sharply in  $\mathcal{F}$  in which the entire second basal cell is infused, and with a small triangular lateral extension on each side of its base.

In the Commonwealth Institute of Entomology, Deutsches
Entomologisches Institut, British, Transvaal, Albany,
Durban and South African Museums, and in the Agricultural Department of Southern Rhodesia.

TEXT-FIG. 96. Side view of hypopygium

Length of body: about 6-10½ mm. Length of wing: about 6-11 mm.

Locality: South-western Cape Province and eastwards pulconcept Lw. along a broad coastal belt to Natal, Transvaal, Swaziland and Southern Rhodesia. There are no specimens in the collections from the Karoo, Namaqualand, Bushmanland and the Kalahari or Bechuanaland.

Apart from slight varietal forms which intergrade and merge into each other or into the typical form, there are at least three forms which deserve a distinct varietal status. These are:



Text-fig. 96. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia pulchriceps Lw.

### Lomatia pulchriceps var. lingnaui n.

This variety differs from the typical pulchriceps in having fewer black hairs on inner lower parts of antennal joints 1 and 2, usually more yellowishly tinted hair on sides of antennae and face, no black prealar bristles, relatively less dense and conspicuous black hair on sides of abdomen and with a tendency for sides of first posterior cell in wings to be even more subparallel.

From 11 33 and 4 99 (types in the Deutsches Entomologisches Institut, Berlin-Dahlem, paratypes in Commonwealth Institute, Transvaal and South African Museums).

Locality: Transvaal: Pretoria (Lingnau, 9 Jan. 1924) (β-type); Pretoria (Lingnau, 31 Dec. 1925) (β-type); Pretoria (Swierstra, 18 Dec. 1905); Pretoria (Swierstra, 20–24 March 1906); Pretoria (Munro, 4 March 1913 and 24 Jan. 1914); Pretoria (2 Jan. 1922); Nelspruit (Lawrence, Jan. 1939). Southern Rhodesia: Arcturus (Melle, 1916).

### Lomatia pulchriceps var. tinctella n.

From typical \$\pi\$ of pulchriceps this variety differs in having the wings distinctly more infused with yellowish brownish, thus appearing much darker, the infusion occupying the base, costal cell and extending across to apex of first basal cell; rest of wings distinctly more tinged or more greyish brownish than in pulchriceps, the darker anterior basal infusion tending to merge imperceptibly into the less tinged apical and hinder parts. Vestiture with the hair predominantly golden yellowish; that on sides of antennae and face tinted yellowish; silvery tuft on frons in front conspicuously contrasting; prealar bristles all yellowish as in var. lingnaui. This variety bears some resemblance to infuscata Bezz. and brunnitineta n. sp. From the former it differs in being much smaller, in having silvery white hair on frons in front, wings which are not so uniformly brownish throughout and much shorter discoidal cell in relation to first posterior cell. From brunnitineta it may at once be distinguished by the proboscis which has an elongate labella, the less stout and finer styliform part of antennal joint 3 and the presence of black hairs also on sides of tergites 2-4.

From 2 P. (Type in the South African Museum.)

Locality: Natal: Sani Pass near Himeville (Bevis, 21 Dec. 1938) (type). Transvaal: Waterval-Bo (Dr. Breyer, Dec. 1898).

# Lomatia pulchriceps var. ogilviei n.

On account of a few slight differences, which appear to be constant, some specimens from Basutoland and Natal may be considered as representing still another variety of *pulchriceps*. From the typical form of the latter they may at once be distinguished by the absence of black prealar bristles, the sparser, less dense and less conspicuous black hair on sides of tergites 2–7 (or 8), distinctly slightly paler and more whitish hair on head and body below, the more hyaline

wings and the longer proboscis on which the spinules below on basal part are not or scarcely evident. From pulchriceps var. lingnaui, which also has no black prealar bristles, they differ in having the pale hair on sides of antennae below, sides of face and on genae more silvery whitish; black hairs on sides of frons anteriorly not extending down to opposite level of bases of antennae and with more numerous black hairs on inner lower part of antennae; hair on body below, even in Q, tending to be distinctly paler, more sericeous whitish, more contrasting with that on body above; black hair on sides of tergites 2-7 (or 8) slightly less dense or conspicuous; proboscis about 2.4-3 mm. long and thus comparatively longer, with the spinules on basal part below absent or much less

evident; wings as in var. lingnaui, with only the base, costal cell, basal half of first basal cell in 3 and in addition basal part of marginal cell and entire first basal cell in Q tinged subopaquely or opaquely yellowish to yellowish brownish; and the longish bristly spicules on basal joint of front tarsi in Q relatively shorter, the longest not as long as second tarsal joint. Hypopygium of 3-paratype as shown in text-fig. 97, resembling that of pulchriceps, but with the produced dorsal edge of basal strut tending to be bifid; base of basal strut also with a triangular lateral extension on each side.

From 2 33 and 5 99 (holotype of variety in the South African Museum, allotype in the Durban Museum, and paratypes in the Commonwealth Institute of Entomology).

Length of body: about 8-10 mm. Length of wing: about 8½-10 mm.

Locality: Basutoland: Mahlomolas (Bevis, 14 Feb. 1939 (types). Natal: National Park (Ogilvie and Mackie, March 1932).



beaked apical joint of 3 Lomatia pulchriceps var. ogilviei n.

# Lomatia jansei n. sp.

A single 3-specimen in the collections also resembles 33 of pulchriceps Lw. and its varieties, especially forms without black prealar bristles. Compared with typical 33 and varietal forms of pulchriceps the characters of this species are: Body black; proboscis and legs very dark castaneous brownish. Vestiture with the hairs on frons anteriorly in form of a smallish medial patch of short silvery white hair, much smaller than in pulchriceps; black hair on sides of frons longer than that of silvery patch; hair on antennae above and below entirely or predominantly black; that on lower parts of genae also black; hair on body above and below gleaming predominantly deep golden yellowish; all the prealar bristles yellowish; black hairs on sides of tergites 2-8 tending to be less dense and less conspicuous than in pulchriceps; scaling above deep golden yellowish, the bands across hind margins of tergites slightly broader, more conspicuous than in 3 of pulchriceps; scaling on legs appearing greyish yellowish

in certain lights, but graphite-like in others. Wings rather narrowish, distinctly grevish or grevish hyaline, iridescent, the base, costal cell, base of marginal cell and entire first basal cell subopaquely pale yellowish brownish; veins reddish brownish; basal comb almost wanting; first posterior cell not narrowed, but broadly open apically, its sides subparallel, distinctly longer than discoidal cell and thus longer than in *pulchriceps*; discoidal cell truncate apically; middle cross vein at about between apical third and apical fourth of discoidal cell; alula and axillary lobe more reduced than in *pulchriceps*, the latter lobe being narrow; squamae opaquely whitish, dark-bordered, fringed with yellowish hair; halteres yellowish, with very pale knobs. Head with the interocular space in front of tubercle in 3 about as broad as length of antennal joint 2, or 2 times width of front ocellus; face convex medially; frons slightly depressed anteriorly; antennal joint 3 bulb-shaped basally; proboscis slender, projecting much beyond buccal cavity, labellar lobes long, slender, pointed apically. Legs with I spine on middle femora anteriorly below; hind femora with 2 spines on outer lower apical part and 2 apical ones above; tibiae with relatively fewer spicules than in pulchriceps. Hypopygium of 3 very similar to that of pulchriceps (cf. textfig. 96), but with the lateral struts relatively shorter,

From a 3 in the Transvaal Museum.

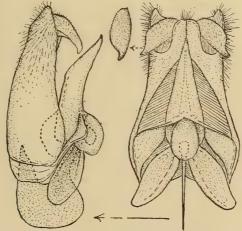
Length of body: about 7 mm. Length of wing: about 7 mm.

Locality: Southern Rhodesia: Umtali (Janse, Jan. 1918).

## Lomatia oreoica n. sp.

Body black; proboscis and legs very dark blackish brown, the tibiae appearing more reddish brownish when denuded. Vestiture with the hairs on frons in front sericeous whitish to pale sericeous yellowish in certain lights; that on antennae below, sides of face and to a certain extent on genae deep sericeous yellowish to deep golden yellowish; that on antennae below usually with a tuft or a few black hairs on inner lower aspect; that on basal part of frons and on antennae above black; hair on body above and below predominantly sericeous yellowish to golden yellowish; that on sides of abdomen posteriorly, especially in 3, appearing paler sericeous yellowish in certain lights; that on pleurae not or scarcely paler than on thorax above; that on venter distinctly paler sericeous yellowish or even more whitish; all the thoracic bristles yellowish or pale; relatively sparse intermixed black hairs present on sides of tergites 2-7 (or 8) these sometimes very sparse on tergites 2 and 3; scaling above sericeous yellowish, brassy yellowish to golden, especially in Q; that on venter more whitish; that on legs greyish yellowish to dull ochreous yellowish on anterior upper surfaces of femora and on tibiae, and more whitish on hinder surfaces. Wings predominantly hyaline, iridescent, the base, costal cell and basal part of first basal cell in 3 and in addition basal part of marginal cell and at least basal two-thirds of first basal cell in \( \text{2} \) tinged opaquely pale yellowish brownish

to brown; veins yellowish brownish to dark brown; basal comb poorly developed; first posterior cell scarcely narrowed, broadly open apically, much shorter than discoidal cell; the latter subtruncate to truncate apically, sometimes even tending to be subacute; middle cross vein varying in position from a little less than apical fourth to apical sixth of discoidal cell; alula and axillary lobe relatively well developed, the lobe of the former distinct and quite as broad as knob of halteres and axillary lobe arcuately rounded; squamae opaquely yellowish whitish, dark-bordered, fringed with straw-coloured to sericeous yellowish hair; halteres yellowish, with very pale knobs. Head with the interocular space in front of tubercle in  $\Im$  narrowish, only a little broader than front ocellus to nearly as broad as length of antennal joint 2; space on vertex in  $\Im$  about 2, or a little more or less, times distance between outer margins of posterior ocelli; frons depressed in front, especially in  $\Im$ ; face convex medially; antennal joint 3 broadened bulb- or club-like at base, more rapidly from base



TEXT-FIG. 98. Side and ventral views of hypopygium of & Lomatia oreoica n. sp.

on lower side; proboscis projecting beyond buccal cavity, labellar lobes long, narrowish, pointed apically, with minute spinules visible in certain lights on basal part below. Legs with from 2 to 5 (in one specimen 7) spines on anterior lower part of middle femora; hind femora with about 3-5 spines on outer lower apical part and about 2 apical spines above; basal joint of front tarsi in Q with longish, bristly spicules below. Hypopygium of A as shown in text-fig. 98.

From 7 33 and 5 99 (types in the South African Museum, paratypes in the Commonwealth Institute and in the Durban and Albany Museums).

Length of body: about 7-10 mm. Length of wing: about 7\frac{1}{2}-10 mm.

Locality: Southern Karoo: Spitzkop in the Swartberge near Meiringspoort (Mus. Exp., Nov. 1935) (types). Western Karoo: Doring River (Mackie, 3 Nov. 1931); Matroosberg (Lightfoot, Jan. 1917). Nieuveld Karoo: Teekloof

in the Escarpment (Mus. Exp., Nov. 1935). South-western Cape: Table Mountain, Cape Town (Bevis, 2 Dec. 1921). Southern Cape: Tradouw Pass near Swellendam (Mus. Exp., Nov. 1925). South-eastern Cape: Grahamstown (Daly and Sole, March 1903).

This species, like fulva, monticola, salticola and oreophila, seems to frequent mountainous regions. It resembles simplex (Wied.) from which it may be distinguished by the presence of black hairs on inner lower part of antennal joints 1 and 2, much shorter palps and slightly more numerous black hairs on sides of tergites. From pulchriceps Lw. it may be distinguished by the presence of fewer black hairs on antennae below, fewer black hairs on sides of abdomen, pale prealar bristles, comparatively more developed and broader alula and axillary lobe and slightly narrower interocular space in 3. The 3-paratype from Grahamstown appears to represent a slight variety which differs from the typical 33 in having the basal part of marginal cell and entire first basal cell also infused with yellowish like the base and costal cell, in having the first posterior cell more distinctly narrowed apically, the middle cross vein at a little more than apical fourth of discoidal cell, more slender and slightly longer proboscis, an interocular space quite as broad as length of antennal joint 2 and with distinctly more black hair on sides of abdomen.

### Lomatia simplex (Wied.)

(Wiedemann, p. 305, Aussereurop. Zweifl. Ins., i, 1828 (as Anthrax); Loew, p. 207, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 114, Ann. S. Afr. Mus., xviii, 1921, in part.)

The identity of this species is doubtful and there is no doubt that Bezzi (p. 114, loc. cit.) referred two distinct species to *simplex*. The difficulty of diagnosing this species is rendered more difficult owing to the fact that there are several species with which Loew was unacquainted, which resemble each other very closely and which can all be more or less made to agree with Więdemann's brief notes and even Loew's more comprehensive description. The 3-specimen labelled by Bigot as 'Anthrax albifrons' and to which Bezzi refers (p. 114, loc. cit.) however agrees more with Loew's description than any of the other superficially very similar species described as oreoica n. sp., leucopsis n. sp. and citraria, in this memoir. This 3-specimen, a somewhat denuded 9-specimen in the British Museum and a series of 33 and 99 in the South African Museum are thus provisionally referred to simplex. The characters of the species are as follows:

Body black; proboscis and legs very dark reddish brownish to blackish brown, the tibiae tending to be slightly paler. Vestiture with the hairs on antennae below and on sides of face deep sericeous yellowish to deep golden yellowish, especially in  $\mathfrak{P}$ ; that on frons anteriorly sericeous whitish to pale sericeous yellowish in  $\mathfrak{P}$  in different lights, more distinctly sericeous yellowish in some  $\mathfrak{P}$ , without any black hairs on antennae below; hair on genae pale sericeous

yellowish to yellow in 3, slightly deeper in 2; that at base of frons and on each side blackish brown to black in 3, that in 2 confined to basal half also black; that on antennae above in both sexes very dark blackish brown or black; hair on body rather dense, golden to deep golden vellowish above, often more orange or reddish fulvous in front of wings and on sides of abdomen; that towards apex on sides of abdomen and on pleurae in some 33 often gleaming slightly paler than above, scarcely so in  $\mathcal{P}$ ; that on venter slightly more whitish basally on each side; all the prealar, postalar and scutellar bristles yellowish; intermixed dark blackish brown to black bristly hairs on sides of tergites 2-7 (or 8), those on tergites 2 and 3 very few or absent, all the dark hairs almost hidden by the dense pale hair on sides of abdomen; scaling above gleaming golden and rather sparse, with fine black ones discally on tergites; that on venter denser, more whitish; that on legs greyish yellowish to yellow, appearing more greyish whitish on lower and hinder surfaces of femora. Wings predominantly glassy hyaline, iridescent, the base, costal cell and base of first basal cell in 3 and in addition the bases of marginal and first submarginal cells and almost entire first basal cell in 2 pale yellowish brownish; the posterior clear part in ♀ is not entirely hyaline but very faintly tinged yellowish up to level of apex of discoidal cell; veins reddish brownish to blackish brownish; basal comb moderately developed; first posterior cell broad, very slightly narrowed, though broadly open apically, considerably shorter than discoidal cell; the latter subacute or subtruncate apically; middle cross vein at about a little more than apical fourth to apical sixth of discoidal cell; alula and axillary lobe relatively well developed, the latter broad and arcuately rounded; squamae opaquely yellowish or yellowish whitish, dark-bordered, fringed with yellowish hair; halteres yellowish or pale yellowish brownish, with ivory yellowish knobs.

Head with the interocular space in front of tubercle in 3 narrowish, about 2 times as broad as front ocellus; space on vertex in 2 about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons transversely depressed anteriorly, especially in Q; face distinctly convex medially; antennal joint 3 broadened club-like basally, more rapidly narrowed from base to apex below; proboscis projecting beyond buccal cavity, its labellar lobes elongate, narrow, pointed apically; palps rather conspicuous, slightly longer than antennal joints 2 and 3, quite 1 mm. long. Legs sometimes with I spine on front femora below; middle femora with from 4 to 7 spines anteriorly below, two of them rather long; hind ones with 4 to 6 spines on outer lower apical half and about 2 apical spines above; basal joint of front tarsi in Q with some longish, bristly spicules below. Hypopygium of 3 as shown in text-fig. 99, with a small triangular ledge-like lateral extension also present on each side of base of basal strut as in the pulchriceps-series.



TEXT-FIG. 99. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia simplex (Wied.).

In the British and South African Museums.

Length of body: about  $10\frac{1}{2}$ - $11\frac{1}{2}$  mm. Length of wing: about 10-11 mm.

Locality: South-western Cape Mountains: Ceres and Worcester Divisions

and also the Cape according to Loew.

#### Lomatia citraria Hesse

(Hesse, p. 396, South African Animal Life, ii, 1955.)

Body, including legs, black; thorax above and scutellum with slightly bluish reflections; proboscis dark blackish brown. Vestiture with the hairs on frons anteriorly, antennae below, sides of face and genae gleaming sericeous yellowish; that on antennae below without or with some black hairs especially in 3, with deeper, more lemon yellowish tints in certain lights and that on frons, but especially genae, sometimes gleaming more whitish in certain lights; that on basal part of frons and on antennal joints 1 and 2 above black; that on body above and below dense, somewhat shaggy, gleaming predominantly sericeous yellowish or pale lemon yellowish; that on hinder part of mesopleural tuft, sternopleuron, coxae, on sides of abdomen posteriorly in 3 especially and especially on venter appearing more whitish; prealar, postalar and scutellar bristles entirely pale like rest of hair; intermixed black bristly hairs or tufts present on sides of tergites 2-7 (or 8); pale scaling above gleaming sericeous yellowish or brassy yellowish, that concentrated in transverse rows across hind margins of tergites broader and more conspicuous in 9; black or dark scaling in between shorter and finer, more evident in Q; scaling on venter denser than above, more whitish; that on legs greyish yellowish, tinted slightly more yellowish on upper and anterior surfaces in certain lights. Wings vitreous hyaline, the iridescence very feeble, almost wanting, the extreme base black and the base, costal cell and basal part of first basal cell in 3 and in addition almost entire first basal cell in Q opaquely yellowish whitish or yellowish; veins dark blackish brown and alula dark-bordered; basal comb poorly developed; first posterior cell sub-spindle-shaped, broad, slightly narrowed, though broadly open apically, very much shorter than discoidal cell; the latter subacute or subtruncate apically; middle cross vein at a little less than apical fifth to nearly apical sixth of discoidal cell; alula and axillary lobe slightly reduced, the projecting lobe of the former however distinct; squamae opaquely whitish, dark-bordered, fringed with whitish hairs; halteres pale yellowish brownish, with very pale yellowish or ivory yellowish knobs. Head with the interocular space in front of tubercle in 3 a little narrower than tubercle or a little broader than length of antennal joint 2; space on vertex in Q a very little less or a very little broader than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly; face slightly convex medially; antennal joint 3 gradually narrowed apically from broadened base, club-shaped basally;

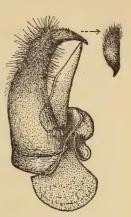
proboscis projecting beyond buccal cavity, its labellar lobes elongate, narrowish, pointed apically; palps conspicuous, about 1 mm. long or quite as long as

antennal joints 2 and 3 combined. Legs with about 2–9 conspicuous spines on lower anterior part of middle femora; hind ones with about 4–7 spines from just before middle to apex on lower outer part and with at least 2 apical spines above and numerous spinelets on outer apical half; basal joint of front tarsi in  $\mathcal{P}$  with longish, bristly spicules below. Hypopygium of  $\mathcal{F}$  as shown in textfig. 100, with rather longish and conspicuous hairs on apical parts of basal parts; beaked apical joints tending to be narrowish; lateral struts shoe-horn-shaped; basal strut with well-developed lateral ledge-like extensions at base, and with apparently no, or only a feeble, indentation along its dorsal edge.

In the South African and Durban Museums and in the Zoological Institute of the University of Lund.

Length of body: about  $9\frac{1}{2}-12\frac{1}{2}$  mm. Length of wing: about  $9\frac{1}{2}-11\frac{1}{2}$  mm.

Locality: North-eastern Cape, Basutoland and Orange Free State.



Text-fig. 100. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia citraria Hesse.

Easily recognized by the predominantly lemon yellowish hair on head in front and on body, broadish bands of pale scaling on abdomen in  $\mathfrak{P}$ , almost non-iridescent wings, rather long palps, and numerous spines on middle and hind femora. From simplex, as defined in this memoir, it differs in having pale lemon yellowish hair, more numerous or more conspicuous black hairs or tufts on sides of abdomen, almost non-iridescent wings, much darker veins, more narrowed first posterior cell, slightly narrower axillary lobe, and slightly broader interocular space in  $\mathfrak{F}$ . From *pulchriceps* and its various varieties it differs in being much larger, in having lemon yellowish or greenish yellow hairs on body above, sericeous yellowish or pale yellowish hairs on frons in front, antennae below and sides of face, a smaller black tuft or no black hairs on antennae below, pale prealar bristles, less dense black hairs on sides of abdomen, a shorter, more sub-spindle-shaped first posterior cell which is narrower apically, a markedly shorter discoidal cell and also a shorter fourth posterior cell.

Lomatia leucopsis n. sp.

(As simplex (Wied.) in part by Bezzi, p. 114, Ann. S. Afr. Mus., xviii, 1921.)

In his revision of the South African Bombyliidae, Bezzi referred representatives of this species to *simplex* (Wied.). These specimens, however, do not agree with Loew's description (p. 207, *Dipt. Faun. Südafr.*, i, 1860) of Wiedemann's species or with the 3-specimen, labelled by Bygot as 'Anthrax albifrons', which

Bezzi also referred to *simplex* and which together with other 33 and 99 I have taken as representing the true *simplex* (see introductory notes to *simplex* in this revision). The chief characters and differences between this species and *simplex* are as follows:

Body black; proboscis and legs dark blackish brownish. Vestiture with the hairs on frons in front, densely on antennae below, sides of face and on genae predominantly sericeous whitish; that on antennae below not yellowish as in simplex, and with some, or even a tuft of black hairs on inner lower part; that on body above paler, gleaming more pale sericeous yellowish or straw-coloured yellowish and not golden, deep golden, or orange fulvous; that on pleurae, in posterior part of mesopleural tuft and on venter distinctly more contrastingly whitish; black hairs on sides of tergites 3-7 (or 8) much denser, more conspicuous and tuft-like; scaling above sericeous yellowish to pale golden in Q; that on venter more whitish; that on legs predominantly greyish whitish, only feebly tinted yellowish in certain lights on upper anterior parts of femora. Wings slightly longer in relation to body than in simplex, glassy hyaline, iridescent, but in 2 the clear part not entirely hyaline, very faintly tinged yellowish up to opposite end of discoidal cell, with the base, alula, costal cell and basal part of first basal cell in 3 and in addition the basal half of marginal cell and entire first basal cell in ♀ subopaquely or opaquely pale yellowish brownish to brownish; veins yellowish brownish to dark brownish; basal comb moderately developed as in simplex; first posterior cell also broad, slightly narrowed, but broadly open apically and also much shorter than discoidal cell; the latter however distinctly more acute than in simplex, its apical cross vein distinctly more parallel to hind border of wings; middle cross vein varying in position from a little less than apical third to a little more than apical fifth of discoidal cell, thus farther away from apex of the latter than in simplex; alula and axillary lobe similarly developed; squamae opaquely yellowish whitish, dark-bordered, fringed with



TEXT-FIG. 101. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia leucopsis n. sp.

whitish hair; halteres pale yellowish brownish, with very pale knobs. Head with the interocular space in front of ocellar tubercle in 3, at narrowest part, only a little narrower than tubercle and comparatively a little broader than in *simplex*; space on vertex in  $\mathcal{P}$  about 2 times distance between outer margins of posterior ocelli; frons depressed anteriorly; face convex medially; antennal joint 3 clublike basally, gradually narrowed apically, more so below; proboscis more slender than in simplex, projecting beyond buccal cavity, more distinctly and more conspicuously spinulated below, its labellar lobes elongate, narrow, pointed; palps markedly long, about 1 mm. long, but with predominantly dark hairs, not pale ones as in simplex. Legs with about 3-6 spines on middle femora anteriorly below; hind ones usually with 4 spines on outer lower apical part and about 2 apical spines above; basal joint of front tarsi in Q with some longish, bristly spicules below. Hypopygium of Z as shown in text-fig. 101, with the lateral struts rather narrowish and without any ledge-like extension on each side of base of basal strut.

From 11 33 and 1  $\circ$  (types in the South African Museum, paratype in the Transvaal Museum).

Length of body: about  $9-9\frac{1}{2}$  mm. Length of wing: about 9-10 mm.

Locality: Transvaal: Barberton (Edwards, Dec. 1911 (types); Nov. 1911); Nelspruit (Lawrence, Jan. 1939, and Breyer, Feb. 1918).

#### Section 3

Wings predominantly hyaline; knobs of halteres dark; hair on sides of body, especially abdomen, characteristically differentiated in 33, there being a conspicuous tuft of snow-white or silvery white hairs on sides of tergites 1-2, or 1-3, or 1-4, or even on entire sides of abdomen which contrasts conspicuously with the dark or black ones on sides of remaining tergites and also with the sparser, shorter and often dissimilarly coloured ones of the 99.

## Lomatia kalaharica n. sp.

(Syn. = mitis Hesse, nec Loew, p. 171, Ann. Transv. Mus., xvii, 1936.)

Two specimens were referred to mitis Lw. by me in a paper dealing with the Bombyliidae of Bechuanaland and the Kalahari. Since then I have examined a large number of species of Lomatia which are all referable to Loew's third group in which the wings are predominantly hyaline and which made the identification of Loew's two species tenera and mitis a difficult problem among such an assemblage. By a careful comparison with Loew's descriptions, I have, however, been able to identify both these two species. My previous determination of mitis thus becomes untenable and the above-mentioned specimens can no longer be retained in mitis. They are now referred to a separate species which is characterized as follows:

Body black; third antennal joints, proboscis and legs very dark reddish or blackish brownish. Vestiture with the hairs on entire frons, antennae above and below, sides of face in  $\Im$  and at base of frons and to a great extent on antennae below in  $\Im$  black; that on greater part of frons, especially on sides, in  $\Im$ , that on sides of face in  $\Im$ , numerous intermixed hairs on inner lower aspect of antennae in  $\Im$  and a few on sides of face in  $\Im$  sericeous or silvery whitish; that on genae predominantly whitish in  $\Im$ , but with numerous intermixed dark hairs in  $\Im$ ; hair on thorax above in  $\Im$  straw-coloured to pale sericeous yellowish; that in mesopleural tuft distinctly deeper yellowish; that across anterior margin of pronotum black, with at least one black prealar bristle among the pale hair; that on scutellum and densely on abdomen, especially sides, snow-whitish; that on pleurae yellowish, but white on venter; some black hairs present only on last tergite; hair on body in  $\Im$  somewhat sparse and almost absent above, dense

on mesopleuron, pleurae and sides of abdomen, predominantly sericeous whitish; one prealar bristle blackish as in 3; tufts of shortish dark blackish brown or black hair present on sides of tergites 4-7; sparse hairs on femora pale in both sexes; scaling above sparse and straw-coloured yellowish in 3, much denser and gleaming pale sericeous yellowish to brassy yellowish in Q, dense on tergite 1, becoming paler, more whitish and also denser on sides across hind margins of tergites; that on venter whitish in both sexes; that on legs appearing grevish to grevish whitish in certain lights, more graphite-like or dark in others. Wings vitreous hyaline, iridescent, the extreme base blackish brown, the base, alula, costal cell and to a certain extent along anterior basal part of first basal cell subopaquely vellowish whitish to vellowish; veins brownish to dark brownish; basal comb almost wanting; first posterior cell narrowish, only very slightly or scarcely narrowed apically but broadly open, its apical cross vein straight and oblique to hind border; middle cross vein at about or a little less than apical third of discoidal cell; alula and axillary lobe reduced and narrowish; squamae opaquely whitish, dark-bordered, fringed with white hair; halteres brownish, their knobs brownish above and pale below. Head with the interocular space in front of ocellar tubercle in 3 very narrow, at narrowest part about as broad as front ocellus; space on vertex in Q a little less than 2 times distance between outer margins of posterior ocelli; from depressed anteriorly,



Text-fig. 102. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia kalaharica n. sp.

the medial part anteriorly without hairs; face very slightly convex medially; antennal joint 3 gradually narrowed apically from broad base, slightly more so below, thus more leek-shaped than bulb-shaped at base; proboscis projecting beyond buccal cavity, its labellar lobes narrowish, pointed apically. Legs with 1 spine medially and anteriorly on middle femora below; hind ones with 1 or 2 spines on outer lower apical part; basal joint of front tarsi in  $\mathcal{P}$  without longish, bristle-like spicules below. Hypopygium of  $\mathcal{J}$  as shown in text-figure 102.

From a ♂ and ♀ in the Transvaal Museum.

Length of body: about  $5\frac{1}{2}$ -6 mm. Length of wing: about  $5\frac{1}{2}$ -6 mm.

Locality: Bechuanaland: Metsimaklaba (V.-L. Kal. Exp., 7–12 March 1930).

The species is dimorphic in that the hair in the  $\Im$  is longer and denser, that on sides of abdomen without any black tufts on sides of tergites 4–7 as in the  $\Im$  and that on pleurae more yellowish than in  $\Im$ . This species is one of a series described below in which the  $\Im\Im$  differ from the  $\Im$  in such characters as the colour and density of the hair. From *tenera* Lw., as defined in this revision, this species differs in having predominantly black hair on antennae below, black hair on frons in  $\Im$ , no black tufts on sides of abdomen in  $\Im$  and black tufts

also on sides of tergite 4 in Q, third antennal joints which are not golf-driver-club-shaped at base, more elongate and narrower labellar lobes, brownish-knobbed halteres, etc.

## Lomatia albicincta n. sp.

Body black; proboscis and legs very dark blackish brown. Vestiture in 3 with the hairs on frons, antennae above and below, sides of face and even on genae predominantly black, with intermixed hairs on antennae below, numerous ones on sides of face and on genae silvery whitish; hair on thorax above and on pleurae predominantly black or blackish brown; that in mesopleural tuft appearing more brownish in certain lights; fine erect hairs on scutellum whitish, the scutellar bristles, however, black; fine sparse hairs on abdomen above black on tergite 1, whitish on 2 and 3 and dark on 4-8; hair on sides of abdomen dense, in form of a characteristic patch of dense silvery white hair on sides of tergites 1-3 and black tufts on sides of 4-8 and also with some black hairs basally on each side of tergite 1; hairs on posterior coxae and on venter gleaming whitish; scaling above sericeous whitish on abdomen, more evident across hind margins of tergites 1-3 and on sides of the other tergites; that on venter denser, sericeous whitish; that on legs appearing greyish to greyish yellowish in certain lights. Wings in 3 vitreous hyaline, iridescent, with the base, alula, basal part of costal cell up to cross vein opaquely yellowish brownish or brown; veins pale yellowish brownish to brown, the false vein in costal cell yellowish; basal comb rudimentary; first posterior cell broadish, not or scarcely narrowed apically, longer than discoidal cell; the latter subtruncate apically; middle cross vein at a point a little less than apical third or a little more than apical fourth of discoidal cell; alula and axillary lobe rather developed, the projecting lobe of the former quite distinct and the axillary lobe arcuately rounded; squamae opaquely brownish, with a dark fringe; halteres brownish, with the knobs chocolate brownish above. Head with the interocular space in front of tubercle in 3 very narrow, only about as broad as front ocellus; frons rather rapidly broadening anteriorly, foveately depressed anteriorly; face slightly convex medially; antennal joint 3 broadened golf-driver-club-like basally; proboscis projecting beyond buccal cavity, its labellar lobes narrowish and short. Legs with 2 spines on lower outer apical part and 2 apically above on hind femora. Hypopygium like that of the following species nigrescens (cf. text-fig. 103).

From a 3 in the South African Museum.

Length of body: about  $5\frac{1}{2}$  mm. Length of wing: about 5 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938).

Easily recognized by the predominantly black or dark hair on frons, thorax and pleurae and the contrasting silvery white patch on sides of abdomen. From 33 of nigrescens Ric. this species differs in having entirely black hair on thorax above, black hairs also at base on sides of tergite 1, relatively broader

axillary lobe, etc. This and the following series of species belong to a section which is characterized by the presence of a conspicuous patch of silvery white hair on sides of tergites 1-3 or 1-4 in 33 especially.

## Lomatia nigrescens Ric.

(Ricardo, p. 92, Ann. Mag. Nat. Hist. (7), vii, 1901.)

There is no doubt that the series of specimens before me represent Ricardo's species which was described from two 33 from Pretoria. The species appears to be very variable as far as the colour of the hair on the head, in the mesopleural tuft, on the pleurae and on sides of abdomen is concerned. It is also evident that transitional forms are to be found between specimens which I take to be typical and others which represent distinct varieties. At least two distinct varieties deviate so much from the typical Pretorian form that they are described below under separate varietal names. Certain specimens from Pretoria which agree in essentials with Ricardo's brief description may be taken as the typical form and are characterized as follows:

Body black; proboscis and legs dark blackish brown, the tibiae tending to be more reddish brownish when denuded. Vestiture with the hairs on greater part of frons in 3, on more than basal half of frons in 9, on antennae above and entirely or predominantly below, on sides of face and genae in 3 black; that on each side of frons anteriorly in Q, a small frontal tuft on each side anteriorly just above level of antennae in 3, a conspicuous tuft on inner aspect of antennae in both sexes, the hair on sides of face in Q, and sometimes some intermixed hairs on sides of face in some 33 and that on genae in 9 silvery whitish; that on thorax in & black in collar-region, straw-coloured whitish to yellowish on thorax in front, antero-laterally and conspicuously in the upper and hinder parts of mesopleural tuft; sparse hairs on disc of thorax also pale or whitish; two prealar bristles, hair on pleurae, propleurae, prosternum and to a certain extent on coxae black; that on scutellum whitish; that in metanotal tuft white and black; that on posterior coxae whitish; that on sides of abdomen dense and shaggy, in form of a dense conspicuous patch of silvery white hair on sides of tergites 1-3 and black or blackish brown tufts on sides of the rest of the tergites; sparse hairs on abdomen above predominantly whitish; hair on body in Q sparse above, that in collar-region black, a few intermixed bristly hairs on each side of thorax and the prealar bristles also black; sparse hairs on disc of thorax and scutellum whitish; that in mesopleural tuft dense and silvery whitish; that on propleural and pleural parts silvery or sericeous whitish; that on front coxae with some dark or black hairs; that on sides of abdomen shorter than in 3, but also silvery whitish on sides of tergites 1-3 and black on 4-7; hair on venter in both sexes silvery whitish; scaling above poorly developed in 3, pale sericeous whitish or yellowish; that on abdomen in \$\infty\$ predominantly black, the pale sericeous yellowish ones concentrated across hind margins of tergites, conspicuous on tergite 1 and on sides of others; that on venter whitish, but poorly developed; that on legs usually appearing dark, gleaming graphite-like or greyish to greyish yellowish. Wings vitreous hyaline, iridescent, the extreme base black, the base, alula, base of costal cell up to cross vein and the part of costal cell posterior to false vein in 3 and in addition also anterior basal part of first basal cell in Q opaquely yellowish whitish to yellowish; veins yellowish brownish to dark brownish, the false vein in costal cell yellowish; basal comb vestigial; first posterior cell broad, not or scarcely narrowed apically, a little longer than discoidal cell; the latter subtruncate to almost subacute apically; middle cross vein varying in position from a little less than apical third to almost apical fourth of discoidal cell; alula and axillary lobe normally reduced, the latter slightly narrower in ♀ than in ♂; squamae opaquely dirty whitish, darkbordered, white-fringed in both sexes; halteres brownish, the knobs chocolate brownish above. Head with the interocular space in front of ocellar tubercle in 3 very narrow, only about as broad as front ocellus, the inner margins of eyes rapidly diverging anteriorly; space on vertex in 2 about, or a little less or more than, 2 times distance between outer margins of posterior ocelli; frons foveately depressed anteriorly, slightly more so in 3, the hairs anteriorly confined to sides;

face convex medially; antennal joint 3 more or less golf-driver-club-like basally, the base below prominent and the styliform part rather stoutish; proboscis projecting beyond buccal cavity, its labellar lobes elongate, narrowish, pointed apically. Legs usually with 1 spine on middle femora below; hind ones usually with 2 spines on outer lower apical part and 2 spines above; basal joint of front tarsi in Q without any long, bristly spicules below, the spicules finer than on middle tarsi. Hypopygium of d as shown in text-fig. 103, with the base of each part not distinctly marked off by a distinct demarcation; lateral struts rather longish and projecting more horizontally than shown in figure; basal strut with its projecting dorsal edge truncated apically and with a small lateral ledge-like triangular extension on each side basally.

In the Transvaal and South African Museums.

Length of body: about  $6-7\frac{1}{2}$  mm. Length of wing: about  $6-7\frac{1}{2}$  mm. Locality: Transvaal: Pretoria.



TEXT-FIG. 103. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia nigrescens Ric.

Easily recognized by the predominantly black hair on frons, sides of face and genae in 3, patch of silvery white hair on sides of abdomen and tuft of silvery white hair on inner side of antennae. With similarly-patterned species described in this revision, it can only be confused with melanthia, albizonata, plocamoleuca and albicineta. From melanthia it may be distinguished by the longer and more slender proboscis, narrower and more pointed labella, the presence of pale hair on thorax above, the presence of a silvery tuft between antennae, white squamal fringe, etc. From albizonata it differs in having predominantly black hair on

frons, antennae below and on face, darker hair on pleurae, white squamal fringe, etc. From plocamoleuca it differs by the sparse dark hair on frons, whitish erect hairs on body above, dark hair on pleurae, etc. From albicineta the 3 differs in having pale hairs on thorax above, conspicuous silvery white hairs between antennae, white squamal fringe, etc. One 3-specimen, presumably from Pretoria, differs from the typical 33 in having the white hairs on sides of abdomen present on sides of tergites 1-4 instead of on 1-3 and white hairs also on sides of face and genae.

Distinct varietal forms are:

#### Lomatia nigrescens var. aterrima n.

This variety differs from typical forms of *nigrescens* in having the entire pleurae black-haired and the mesopleural tuft black in  $\mathcal{S}$ , the black hair also extending on each side of thorax in front and above wings, only the hair on thorax above and on scutellum being whitish; the rest of the hair on abdomen is similar to that of the typical form. The  $\mathcal{P}$  on the other hand has the same sericeous whitish or silvery hair on head, mesopleurae and pleurae as in typical  $\mathcal{P}$ , but differs in having more numerous intermixed black bristly hairs anteriorly, antero-laterally and on sides of thorax.

From 3 33 and 2 99 (types in the South African Museum and paratypes in the Transvaal Museum).

Locality: Eastern Transvaal: Nelspruit (Lawrence, Jan. 1939 (types); Nelspruit (Breyer, Feb. 1918).

## Lomatia nigrescens var. bulawayoënsis n.

(Syn. = tenera Bezzi, nec Loew, p. 116, Ann. S. Afr. Mus., xviii, 1921.)

Representatives of this form deviate from the typical form and var. aterrima in having the black hair on head in of distinctly less extensive, a more extensive and denser white tuft on inner side of antennae, some intermixed hairs on antennae below, numerous intermixed hairs on sides of face and upper part of genae also being silvery whitish; hair on thorax above, in mesopleural tuft, on entire pleurae and coxae in 3 predominantly sericeous whitish, without any, or with only a few inconspicuous, dark hairs on lower parts of mesopleuron and with even the hairs in metanotal tuft sometimes entirely pale; hair on thorax in Q, excepting black prealar bristles, without any intermixed black hairs anterolaterally and laterally, that on thorax above, in mesopleural tuft and on entire pleurae being entirely sericeous whitish; that on sides of abdomen in both sexes differing from the typical form in having a conspicuous patch of silvery white hair on sides of tergites 1-4 and not only on sides of 1-3, and the blackish tufts confined to sides of 5-7 (or 8); proboscis a little shorter. The hypopygium of 3 differs from that of nigrescens (cf. text-fig. 103) in having the lateral struts slightly broader and the dorsal projecting edge of the basal strut more acute and less truncated. In all other respects this variety agrees with the typical form.

From 7 33 and 1  $\circ$  (holotype of this variety in the South African Museum, the allotype in the Commonwealth Institute and paratypes in the Rhodesian and Transvaal Museums).

Length of body: about  $5-6\frac{1}{2}$  mm. Length of wing: about  $5\frac{1}{2}-7$  mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 21 Dec. 1911 (holotype) and 7 Feb. 1923 (allotype)); Bulawayo (Stevenson, 8 Dec. 1924, 10 Dec. 1924, 19 Dec. 1924); Hope Fountain (Rhod. Mus., 13 Dec. 1921).

A 3-specimen in the South African Museum, from Kranskop in Natal, differs from the more typical forms of this variety in having the white patch on sides of abdomen on sides of tergites 1-3 as in the typical nigrescens. The holotype was wrongly determined and labelled as tenera Lw. by Bezzi (p. 116, loc. cit.). From tenera, according to Loew's description, it differs in not having distinct yellowish or yellowish brownish hair anteriorly on thorax and no pale sericeous yellowish hairs on scutellum and abdomen above.

# Lomatia consors n. sp.

Body black; buccal rim, proboscis and legs dark castaneous brownish, the tibiae slightly paler brownish. Vestiture in ♀ with the hairs on sides of front half of frons, antennae below, sides of face and genae silvery whitish; that at base of frons and on antennae above black; that on disc of thorax very sparse and whitish, but with intermixed black hairs anteriorly, black hairs in collar-region, numerous black bristly hairs intermixed with whitish ones on sides in front of wings, black prealar bristles and some black postalar bristles; mesopleural tuft and hair on pleurae gleaming sericeous whitish; that on abdomen gleaming sericeous whitish on sides of tergites 1-3 and dark blackish brown on sides of 4-7; scaling above gleaming sericeous yellowish; that across hind margins of tergites, especially tergite 1, more brassy yellowish in certain lights; that on venter more whitish; that on legs appearing greyish, more whitish on upper surfaces of femora, especially hind ones. Wings in 2 vitreous hyaline, iridescent, the base, alula, costal cell and along anterior basal part of first basal cell opaquely yellowish whitish; veins yellowish brownish to brown; basal comb vestigial; first posterior cell not narrowed, but very broadly open apically, very much longer than discoidal cell; the latter subtruncate apically; middle cross vein at about midway between apical third and apical fourth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely dirty whitish, dark-bordered, fringed with white hairs; halteres brownish, the knobs chocolate brownish above. Head with the interocular space on vertex in 2 about 2 times distance between outer margins of posterior ocelli; indentation in hind margin of eyes rather angular; frons rather deeply foveately depressed medially in front, the hairs anteriorly confined to sides; face slightly convex medially; antennal joint 3 sometimes rather shortish, gradually narrowed apically from broad base, more rapidly below, its styliform part rather short or stoutish, giving the joint a ham-shaped appearance; proboscis projecting beyond buccal cavity, its labellar lobes narrowish, pointed apically. Legs with 1 spine medially and anteriorly below on middle femora; hind ones without any spines in the specimens before me, but with about 2 apical spines above; basal joint of front tarsi in Q without any distinct, longish, bristly spicules below.

From 2 99 (type in the South African Museum and paratype in the Commonwealth Institute).

Length of body: about  $5\frac{1}{2}$  mm. Length of wing: about  $5\frac{1}{2}$  mm.

Locality: Basutoland; Mamathes (Guillarmod, 16 Feb. 1952)(type). Northeastern Cape Province: Lady Grey (Nel, 30 Dec. 1924).

These  $\varphi\varphi$  very closely resemble  $\varphi\varphi$  of *nigrescens* or its varieties and may even prove to be only another distinct varietal form of that species. They differ, however, in not having any dense black hairs on antennae below, more pale hairs on sides of thorax just above wings and relatively shorter third antennal joints in which the styliform part is shorter or stouter and the base less rapidly broadened below.

#### Lomatia compsocoma n. sp.

Body black; buccal cavity castaneous brownish; proboscis and femora dark blackish brown, the tibiae usually paler, more yellowish brownish or reddish brownish. Vestiture with the hairs on frons in front, antennae above and below, sides of face and genae entirely or predominantly sericeous whitish to very pale sericeous yellowish in certain lights; that on basal part of frons, antennae above in some cases and sometimes a few intermixed hairs on antennae below and on lower parts of genae black; hair on body in & straw-coloured whitish or yellowish to pale sericeous yellowish on thorax and scutellum above, usually more yellowish on anterior part; mesopleural tuft whitish or straw-coloured to distinctly yellowish; bristly hairs in collar-region black; two prealar bristles black; hair on pleurae straw-coloured whitish to very pale sericeous yellowish in certain lights; that in propleural part sometimes appearing more yellowish and sometimes with some intermixed dark hairs on prosternal part; fine erect hairs on abdomen above usually whitish, sometimes gleaming straw-coloured; hair on sides of abdomen in form of a characteristic, conspicuous and contrasting patch of silvery white hair on sides of tergites 1-3 and black or dark blackish brown tufts on sides of 4-8; hairs on venter gleaming sericeous whitish; hair on body in ♀ less dense than in ♂, very sparse above, gleaming predominantly sericeous whitish to straw-coloured yellowish; hairs on disc of thorax sparse, those in mesopleural tuft usually conspicuous and sericeous whitish; two prealar bristles and sometimes some collar hairs black; hair on pleurae sericeous whitish; that on abdomen conspicuously snow-whitish on sides of tergites 1-3 and dark blackish brown to black on sides of 4-7; pale scaling above gleaming sericeous yellowish in ♂ to sericeous yellowish or brassy yellowish in ♀, the transverse bands broadened on sides; rest of scaling on tergites in ♀ black; scaling

on venter sericeous yellowish; that on legs appearing greyish to greyish yellowish, gleaming whitish or satin-like on upper surfaces of femora. Wings vitreous hyaline, iridescent, the extreme base blackish, the base, alula, base of costal cell up to cross vein, posterior to false vein in costal cell and to a certain extent along anterior basal part of first basal cell opaquely yellowish whitish to yellowish; veins yellowish brownish to dark brownish, the first main vein and basal parts of others more yellowish or yellowish reddish; basal comb vestigial; first posterior cell broadish, usually not narrowed, but broadly open apically, its sides tending to be subparallel, either subequal in length to, or a little longer than, discoidal cell; the latter subtruncate to truncate apically; middle cross vein varying in position from about apical third to apical fifth of discoidal cell, more frequently a little less than apical third; alula and axillary lobe normally reduced, the lobe of the former at base of latter small but distinct; squamae opaquely whitish, dark-bordered, fringed with white hair; halteres brown, their knobs chocolate brownish above. Head with the interocular space in front of ocellar tubercle in 3 very narrow, only about as broad as front ocellus or a little broader, the inner margins of eyes rapidly diverging anteriorly; space on vertex in ♀ about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons depressed medially in front, even more so in 3, the medial depression or anterior part free of hairs; face slightly convex medially; antennal joint 3 broadened bulb-like or almost golf-driver-club-like basally below, the lower basal part more bulging than above; proboscis projecting

beyond buccal cavity, minutely spinulated below, its labellar lobes elongate, narrow, pointed apically. Legs usually with I spine medially and anteriorly on middle femora below; hind ones with 2 or 3 spines on outer lower apical part; middle femora with the fine hairs on hinder part rather conspicuously and densely developed; middle tibiae with the row of longish spicules on outer or hinder part more conspicuously developed than in most species; basal joint of front tarsi in ♀ without any distinct, longish, bristle-like spicules below. Hypopygium of 3 as shown in text-fig. 104, with the dorsal edge of basal strut rather prominently and sharply produced and with a triangular

ledge-like extension on each side basally.

From 15 33 and 4 99 (types in the South African Text-fig. 104. Side Museum, paratypes in the Commonwealth Institute, British and Transvaal Museums).

Length of body: about 6-8 mm. Length of wing: about  $6\frac{1}{2}$ -8 mm.



Locality: Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931) (types). Northeastern Karoo: Aliwal North (Turner, Dec. 1922); Lady Grey (Nel, 30 Dec. 1924). Transvaal: Pretoria (Munro, 21 Oct. 1914-17, and Swierstra, 21 Nov. 1915).

Easily recognized by the pale hair on antennae below, the straw-coloured whitish or yellowish hair on thorax antero-laterally and on pleurae in  $\Im$ , the two black prealar bristles, conspicuous silvery whitish patch on sides of abdomen, conspicuous hairs on middle femora and spicules on middle tibiae. The  $\Im$  differs from  $\Im$  of nigrescens var. bulawayoënsis in being slightly larger, in having predominantly or entirely silvery whitish hair on frons in front, on antennae below, sides of face and genae, slightly more yellowish-tinted hair in mesopleural tuft, white hair only on sides of tergites 1–3, no black hairs on sides of thorax, a broader frontal space across antennae, etc. From the  $\Im$  of consors the  $\Im$  differs in not having any black hairs on sides antero-laterally on thorax, relatively shorter first posterior cell and more conspicuous and denser spicules on middle tibiae. The species appears to be slightly variable and the  $\Im$ -paratypes from Pretoria have more black hairs in collar-region and on prosternal parts, distinctly more yellowish hair on pleurae and in mesopleural tuft, and, in one specimen, even numerous black hairs on antennae below.

## Lomatia albizonata n. sp.

Body black; buccal cavity brownish to dark brownish; proboscis dark castaneous brownish to blackish brown; legs dark chocolate-brownish to blackish brown, the tibiae usually slightly paler and more sienna-brownish than femora. Vestiture with the hairs on almost entire frons in 3, anterior part of frons in \( \begin{aligned} \text{, antennae above and below, sides of face and genae sericeous whitish } \end{aligned} \) in both sexes; that on ocellar tubercle and in Q on basal half of frons black; that on thorax and scutellum in 3 mostly yellowish brownish to brownish golden, with dense intermixed black hairs discally above, in mesopleural tuft and on prosternal part; that on thorax in ♀ gleaming sericeous or silvery whitish in mesopleural tuft in front of wing-bases and sericeous yellowish to golden on propleural part and to a lesser extent on coxae; that on disc above mostly composed of sparse black bristly hairs; metanotal tuft in 3 vellowish brownish and with intermixed black hairs, silvery whitish in ♀ and with or without a few dark hairs; prealar, postalar and scutellar bristles black in both sexes; sparse erect hairs on abdomen above predominantly pale on tergites 2-4 and black on terminal tergites in 3 at least; hair on sides of tergites 1-3 in 3 in form of a characteristic, conspicuous, dense, silvery whitish gleaming patch which is usually flanked anteriorly by a brownish tuft or a few dark hairs; hair on sides of tergite 1 and base of 2 in 2 also silvery or snow-whitish; hair on rest of tergites 4-8 in ♂ and 2-7 in ♀ in form of blackish brown to dark mauvish brownish tufts; hair on venter gleaming sericeous whitish in both sexes; scaling on body above gleaming sericeous yellowish to golden on thorax and scutellum in 3, paler in 2, the tuft on sides of scutellum silvery in both sexes; scaling on abdomen above composed of black and gleaming sericeous whitish hair-like scales, the pale ones across hind margins of tergites usually slightly more sericeous yellowish on tergite 1 and more tuft-like on sides of tergites in  $\mathcal{D}$ , those across 1-3 in  $\mathcal{D}$  some-

times conspicuous and band-like; those on venter predominantly whitish; those on legs grevish whitish, appearing grevish yellowish on outer surfaces of femora and on tibiae. Wings glassy hyaline, iridescent, with the base, basal part of costal cell up to cross vein and along anterior basal part of first basal cell in 3, and base, costal cell, basal part of marginal cell and more or less the basal half of first basal cell in Q yellowish brownish; veins yellowish brownish to dark brownish; basal comb poorly developed; first posterior cell broadly open apically, its sides almost subparallel in  $\mathcal{P}$ , a little longer than discoidal cell, but in some \$\text{Q}\$ tending to be subequal in length; discoidal cell comparatively broader and shorter in 3, subacute apically; middle cross vein varying in position from about a little before apical fourth to apical fifth of discoidal cell; alula and axillary lobe normally reduced; squamae subopaquely greyish translucent, black-bordered, fringed with yellowish brownish hair in 3 and white hair in 9; halteres yellowish brownish, with brownish or dark brown knobs. Head with the interocular space in front of ocellar tubercle in 3 very narrow, only about as broad as front ocellus; space on vertex in 2 about 2 times distance between

outer margins of posterior ocelli; frons very shining in  $\mathcal{Q}$ , slightly depressed anteriorly; face convex medially; antennal joint 3 golf-driver-club-shaped at base; proboscis projecting beyond buccal cavity, its labellar lobes shortish, bluntly pointed apically. Legs usually with 1 spine anteriorly on middle femora and 2 on outer lower apical aspect, and about 2 apically above on hind femora; basal joint of front tarsus in  $\mathcal{Q}$  without any distinct, longish, bristly spicules below. Hypopygium of  $\mathcal{O}$  (text-fig. 105) with the dorsal projecting edge of basal strut sometimes tending to be subtruncate at its apex like that of nigrescens and with a lateral extension on each side of base of basal strut.

From 9 33 and 6 99 (types in the South African Museum Text-fig. 105. Side view of hypopygium and paratypes in the Transvaal Museum).

Length of body: about  $5\frac{1}{2}$ -7 mm. Length of wing: about  $5\frac{1}{2}$ -7 mm.

Locality: South-western Little Karoo: Montagu (Light-

foot, Nov. 1919) (types); Montagu (Tucker, Oct. 1919, and Durden, 1937). Koup Karoo: Oukloof in Beaufort West Dist. (Mus. Exp., Jan. 1949). Western Cape: Stellenbosch (Brauns, 5 Dec. 1926). Eastern Cape: Patentie,

near Humansdorp (Mus. Exp., Oct. 1938).

This species is easily recognized by the entirely white hair on greater part of frons, antennae above and below and on genae, the yellowish brownish or brownish golden hair on thorax in  $\delta$ , the contrasting and conspicuous silvery white patch on each side of abdomen basally in  $\delta$ , the black hairs on thorax above, the silvery whitish hair on mesopleurae in  $\mathfrak{P}$ , the dark blackish brown tufts on sides of abdomen posteriorly in both sexes and the brownish halteres with dark brown knobs. Representatives of this species in the South African Museum



TEXT-FIG. 105. Side view of hypopygium and dorsal view of right beaked apical joint of *& Lomatia albizonata* n. sp.

have been labelled as tenera by Bezzi. From Loew's description of the latter species it is quite evident that Bezzi's determination is incorrect. In the case of tenera the thorax in the 3 is predominantly white-haired, with no black discal hairs or bristles, the white hair on sides of abdomen is present on tergites 1-4 and is not in the form of a conspicuous silvery patch, the knobs of the halteres are almost whitish, the proboscis is stumpy and with a broad ovoid labella, etc. The 3-paratype from Stellenbosch in the Transvaal Museum represents a slight variety in which there are more black hairs at base of frons, paler yellowish hair on pleurae, broader bands of dense white scaling across hind margins of tergites 2 and 3, more yellowish scaling on venter and a middle cross vein which is at only a little less than apical third of discoidal cell.

## Lomatia plocamoleuca n. sp.

Body black; proboscis and the tibiae dark blackish brownish or dark reddish brownish. Vestiture with the hairs on front half of frons, intermixed hairs on antennae below, more numerous in Q, and hair on sides of face and genae sericeous whitish; that on basal part of frons, on antennae above in both sexes and more numerous hairs on antennae below in & black; hair on thorax above in 3 composed of intermixed sericeous yellowish or golden yellowish hairs and black ones; that in collar-region with denser black hair; that in mesopleural tuft and on pleurae yellowish or brownish golden, with numerous intermixed black hairs on propleural and prosternal parts and on front coxae; hair on thorax in Q gleaming sericeous whitish in mesopleural tuft and on pleurae; that on disc above predominantly black, but with intermixed pale hairs; that on propleural part tinted slightly yellowish; prealar, postalar and scutellar bristles black in both sexes; hairs in metanotal tuft predominantly black in & and white in Q; erect bristly hairs on abdomen discally entirely black in both sexes; a conspicuous patch of silvery white hair on sides of abdomen on tergites 1-3 in 3 and on sides of tergite 1 in 9, the dense tufts on sides of the other tergites 4-8 in 3 and 2-7 in 2 black; hair on venter sericeous whitish in both sexes; scaling above predominantly sericeous whitish; that on thorax and across hind margin of tergite I tinted slightly more sericeous yellowish, the bands across hind margins of tergites slightly broader and more conspicuous in Q, appearing more tufty on sides; scaling on legs gleaming greyish in certain lights and graphite-like or black in others. Wings glassy hyaline, iridescent, with the base, costal cell up to cross vein and basal part of first basal cell in 3, and base, costal cell, the bases of marginal and first submarginal cells to a lesser and variable extent and more or less basal half of first basal cell in ♀ vellowish to dark brownish; veins brown to dark brownish; basal comb much reduced, more so in 9; first posterior cell usually slightly longer than discoidal cell, broadly open apically and not narrowed; discoidal cell subacute apically; middle cross vein at about from apical fourth to apical fifth of discoidal cell; alula and axillary lobe normally reduced, slightly more in \$\operation\$; squamae opaquely dark brownish, fringed with brown hair in ♂ and white ones in ♀; halteres dark brownish, their knobs dark chocolate brownish. *Head* with the interocular space in front of ocellar tubercle in  $\Diamond$  very narrow, only about as broad as front ocellus; space on vertex in  $\Diamond$  about 2 times distance between outer margins of

posterior ocelli; frons brilliantly shining in Q and depressed anteriorly in both sexes; face convex medially, appearing subconically prominent from side; antennal joint 3 golf-driver-club-shaped at base, the lobe basally below, however, not markedly projecting; proboscis projecting beyond buccal cavity, its labellar lobes shortish, tending to be rounded apically. Legs usually with about 1 spine on middle femora; hind ones with 2 spines on outer lower apical aspect and 1 or 2 apical ones above; basal joint of front tarsus in Q with some longish bristly spicules below towards apex. Hypopygium of Q as shown in text-fig. 106, with the greater medial basal dorsal part of combined basal parts appearing transparent membranous and not chitinized as in other species; base of basal strut with a lateral ledge-like extension on each side.



TEXT-FIG. 106. Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia plocamoleuca n, sp.

From 7 33 and 6 99 (types in the South African Museum).

Length of body: about 5-7 mm. Length of wing: about  $5\frac{1}{2}$ - $7\frac{1}{2}$  mm.

Locality: South-eastern Cape: Willow River (Cockscomb Mnt. in Uitenhage Div.) (Mus. Exp., Oct. 1938) (types). Southern Cape: Swellendam (Tradouw Pass) (Mus. Exp., Nov. 1925); Montagu (Durden). Karoo: Meiringspoort (Mus. Exp., Nov. 1935). Nieuveld Karoo: Beaufort West Dist. (Mus. Exp., Nov. 1935).

This species differs from albizonata in having black hairs on antennae above and numerous black ones below, entirely black hairs on abdomen above discally, black hairs on propleural part in  $\mathcal{J}$ , darker veins in wings, darker legs, some distinct, longish, bristly spicules on basal joint of front tarsus in  $\mathcal{L}$ , etc. The darkish anterior infusion in wings in some  $\mathcal{L}$  is very pronounced. The four  $\mathcal{L}$ -paratypes and  $\mathcal{L}$  from the Nieuveld Karoo in the Beaufort West area differ from the Eastern typical form in being slightly smaller, in having no dark hairs across sides of tergite  $\mathcal{L}$ , more white hairs on antennal joint  $\mathcal{L}$  below, more dark hairs on coxae, and the infusion in wings in  $\mathcal{L}$  not extending into bases of marginal and first submarginal cells.

# Lomatia arenaria n. sp.

Body, including legs, black; integument of frons, occiput, thorax above and scutellum more shiny in  $\mathcal{Q}$ . Vestiture with the rather dense hair on entire frons in  $\mathcal{S}$ , on sides of frons anteriorly in  $\mathcal{Q}$ , most of the hairs (or all of them) on antennae below in  $\mathcal{S}$ , a tuft on inner aspect of antennae below in  $\mathcal{Q}$ , on sides of face and genae in both sexes silvery white; hairs on ocellar tubercle, those on

greater part of frons in Q up to near antennae, fine ones on antennae above (fewer in 3), a few intermixed ones on antennae below in 3 and a dense tuft on antennae below in ⊋ black; most of the hairs on disc of thorax in ♂, denser hairs on sides of thorax and in mesopleural tuft in both sexes, those on prosternal part and rest of pleurae, on coxae, very densely on sides of tergite 1 and base of 2 in ♂, sides of tergite 1 in ♀ and hairs on venter sericeous white; those on anterior part of humeral tubercle and in propleural tuft and to a very much lesser extent on coxae more sericeous vellowish to fulvous vellowish, especially in  $\mathcal{P}$ ; anterior part of collar above, intermixed hairs on front part and sides of thorax and also discally above on thorax and scutellum in Q, prealar, postalar and scutellar bristles, numerous hairs in metanotal tuft, intermixed hairs on front and middle coxae, dense, shaggy and tuft-like ones on sides of abdomen from tergite 2 and across hind margin of last sternite black; fine hairs on femora gleaming pallid; sparse scaling on thorax above silvery or sericeous whitish anteriorly and on sides, more golden across base and base of scutellum; small tuft on sides of scutellum whitish; scaling on abdomen above black and pale, the latter arranged narrowly across hind margins of tergites and silvery to pale sericeous yellowish, denser, broader and more conspicuous across hind margin of tergite 1, especially in Q, where they are also distinctly brassy, golden or vellowish in middle; pale bands on extreme sides denser, broader, more patchlike; rest of scaling on tergites dull black; scaling on venter white, denser across hind margins and sides; that on legs grevish whitish. Wings vitreous hyaline, iridescent, with the base in 3 and base, costal cell, a little less than basal half of marginal cell, extreme base of first submarginal cell and greater part or even entire first basal cell in Q yellowish brownish to brown, the extreme bases of second basal and anal cells in 2 sometimes also slightly tinged; costal cell beyond cross vein and upper half of basal part of first basal cell in 3 subopaquely whitish; veins dark; basal comb feeble, black; apical part of second vein not very much recurved; first posterior cell subequal in length or only a



TEXT-FIG. 107. Side view of hypopygium of d Lomatia arenaria n. sp.

little shorter than discoidal cell; the latter subacute apically, its apical vein straight or almost so; axillary lobe arcuately rounded, broadish; alula narrowish, but distinct; squamae brownish, snow-white-fringed; halteres brownish, their knobs dark brown. Head with the interocular space in front of ocellar tubercle in  $\Im$  as broad as narrow front part of tubercle or a little broader than front ocellus; space on vertex in  $\Im$  about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons distinctly foveately depressed anteriorly, more so in  $\Im$ , this depression even in  $\Im$  not entirely free of hairs in middle, though hairs on sides are denser, very dense in  $\Im$ ; face slightly conically prominent; antennae with joint 1 about or nearly 2 times length of 2, joint 3 in  $\Im$  slightly more ham-shaped, less rapidly narrowed below from broad base, in  $\Im$  more bulb-shaped, the broad base

shorter below, more bulging and more rapidly narrowed, the more slender part in both sexes relatively shortish; proboscis projecting a little beyond buccal cavity, its labellar lobes shortish, oval, shorter than antennal joint 3. Legs without any spines on front femora; middle ones with 1 or 2 spines on anterior lower medial part; hind ones with about 2 or 3 spines on outer lower apical part and 1 or 2 apical ones above. Hypopygium of 3 as shown in text-fig. 107.

From 6 33 and 14 99 (types in the South African Museum).

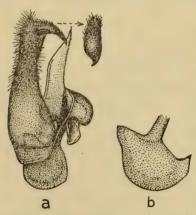
Length of body: about 5-7 mm. Length of wing: about 6-7 mm.

Locality: Little Karoo: near Zebra in the Oudtshoorn Dist. (Mus. Exp., Oct. 1951) (types); Uniondale Dist. (Mus. Exp., Oct. 1952). Koup Karoo: between Rooinek Pass and Seven Weeks Poort (Mus. Exp., Oct. 1952).

# Lomatia atrella n. sp.

Body black; proboscis and legs very dark blackish brown, the tibiae not or scarcely paler or more reddish brownish than dark femora. Vestiture with the hairs on entire frons, antennae above and predominantly or entirely below, to a great extent on sides of face and on entire genae black in  $\beta$ , only some hairs or a tuft on each side of face and sometimes a few intermixed hairs on antennae below straw-coloured yellowish or sericeous yellowish; hair on head in  $\varphi$  black on more than basal half of frons, on antennae above and as intermixed hairs on antennae below and a few on lower parts of genae; that on frons anteriorly, densely on antennae below, sides of face and genae sericeous whitish in  $\varphi$ ; that on entire thorax above and below, metanotum and on scutellum in  $\beta$  fairly dense and entirely black or very dark blackish brown or mauvish blackish; that on hinder part of mesopleuron in  $\beta$  tinted more mauvish or brownish black in certain lights; sparse hairs on abdomen discally above in  $\beta$  predominantly sericeous whitish, but with black hairs posteriorly; that on sides of abdomen in  $\beta$  dense, tuft-like and shaggy, white on sides of tergites 1 and 2, these hairs

being flanked on extreme sides and basally by black hair; also a conspicuous and contrasting silvery white patch on sides of apical half of tergite 2 and sides of 3 in 3; tufts on sides of tergites 4-8 very dark blackish brown, mauvish black to black; hairs on venter in 3 gleaming sericeous whitish, straw-coloured to pale sericeous yellowish in certain lights; hair on body in 2 sparse and black on disc of thorax, slightly denser but also black in collar-region, black on sides of thorax, with black prealar, postalar and scutellar bristles; hair in mesopleural tuft in Q dense and sericeous whitish; that on pleurae also sericeous whitish; that on abdomen sericeous whitish on sides of tergites 1-2 and as black tufts on sides of 3-7; scaling above predominantly black on abdomen, the pale scaling very sparse in 3, sericeous yellowish to pale golden across hind margins of tergites, denser in 2 and more evident on sides of thorax, scutellum and across hind margins of tergites; that on venter sericeous yellowish; that on legs in both sexes usually appearing dark or graphite-like, but gleaming grevish whitish in certain lights. Wings vitreous hyaline, iridescent, the base, alula, basal part of costal cell up to cross vein and part of costal cell posterior to false vein in A and in addition the entire costal cell and along anterior basal part of first basal cell in Q opaquely yellowish; veins dark brownish or blackish brown, sometimes more yellowish basally, the false vein in costal cell yellowish; basal comb poorly developed, vestigial in 9; first posterior cell broad, not or scarcely narrowed apically, much longer than discoidal cell; the latter truncate apically, sometimes tending to be subtruncate; middle cross vein at a little less than apical third to apical fourth of discoidal cell; alula and axillary lobe normally reduced; squamae brownish, fringed with black hairs in 3 and white ones in 9; halteres and their knobs above dark chocolate brownish. Head with the interocular space in front of ocellar tubercle in & a little narrower than tubercle or



TEXT-FIG. 108. (a) Side view of hypopygium and dorsal view of right beaked apical joint of 3 Lomatia atrella n. sp. (b) Side view of basal strut of hypopygium of 3 Lomatia eremia n. sp.

subequal to length of antennal joint 2: space on vertex in 2 about 2 times distance between outer margins of posterior ocelli, appearing relatively broad because inner margins of eyes diverge only gradually apically; frons smooth and shining, more or less foveately depressed anteriorly in 3, more transversely in 9. with the hairs anteriorly more confined to sides; face slightly convex medially; antennal joint 3 broadened golf-driverclub-shaped basally below; proboscis short, projecting only a little beyond buccal cavity, its labella and lobes short, ovoid, bluntly or rounded apically, resembling two cupped hands when opened, but distinctly much shorter than basal part of proboscis. Legs usually with I spine

medially on middle femora; hind ones with 2 spines on outer lower apical part and 2 apical spines above; basal joint of front tarsi in  $\mathcal{P}$  without any longish bristly spicules below. Hypopygium of  $\mathcal{J}$  as shown in text-fig. 108, a.

From 7 33 and 1 \( \text{(types in the South African Museum)}.

Length of body: about 5-7 mm. Length of wing: about  $5\frac{1}{3}$ -7 mm.

Locality: Eastern Cape: Groendal in Uitenhage Dist. (Mus. Exp., 28 Oct. 1938) (types); Willow River in Uitenhage Dist. (Mus. Exp., Oct. 1938); Patentie in Humansdorp Dist. (Mus. Exp., Oct. 1938).

Easily recognized by the predominantly black hair on head and thorax in 3 and the conspicuous, though smallish, silvery white tuft on sides of tergites 2 and 3. From the similarly coloured *melanthia* the 33 are distinguished by the distinctly broader interocular space, slightly longer and more slender proboscis, shorter labella, conspicuous black hair on extreme sides of tergite 1, more truncate discoidal cell, and a first posterior cell which is much longer than discoidal cell. The 2 resembles that of *nigrescens* and its varieties, but may at once be distinguished by the shorter proboscis, ovoid and shortish labella, white hair only on sides of tergites 1 and 2, and dark scutellar bristles.

### Lomatia fulvipleura n. sp.

Body black; integument of frons in 3 and frons, occiput, thorax and scutellum in 2 shiny; legs very dark blackish brown or dark piceous brownish, the tibiae slightly paler. Vestiture with the tuft anteriorly on each side of frons in 3, hairs on sides of slightly less than anterior half of frons in  $\mathcal{P}$ , some hairs on antennae below in 3 and even more or all below in 2, those on sides of face and genae (only upper part in 3) sericeous whitish to very pale sericeous yellowish, sometimes pale fulvous yellowish in some 33; hairs on ocellar tubercle, entire from in  $\beta$  and greater part of from in Q, those on antennae above and a dense tuft below (fewer or not at all in 2) black; hair on entire thorax and scutellum above, propleural and prosternal parts, predominantly on coxae, in metanotal tuft, on sides of tergite 1 below and densely on sides of tergites 4-8 and on posterior tergites above in & black; that in mesopleural tuft, sternopleuron, small metapleural tuft and intermixed hairs on propleurae and coxae in 3 sericeous yellowish to fulvous, the mesopleural tuft being more conspicuous and contrastingly deeper fulvous yellowish; hairs on tergite 1, especially sides above, and that very densely on sides of 2 and 3 in 3 silvery whitish, the latter being very conspicuous; sparse hairs on tergites above and those on venter in 3 also white; hairs on body in 2 silvery whitish, dense in mesopleural tuft, prosternal tuft, on tergite 1 (dense on sides) and on venter, more sericeous yellowish in humeral tuft, upper part of propleural tuft and to a lesser extent on coxae, black in collar anteriorly, on thorax above anteriorly and laterally (less dense than in 3), on scutellum; prealar, postalar and scutellar bristles and fine hairs on abdomen above, dense tufts on sides of abdomen and a few intermixed hairs on front and sometimes also middle coxae also black; fine hairs on femora pallid or whitish in both sexes; scaling on front part and sides of thorax absent or dark in 3, but denser and gleaming pale brassy or sericeous yellowish in ♀, that across base of thorax and scutellum in ♀ more golden; tuft of hair-like scaling on sides of scutellum sericeous yellowish in  $\mathcal{Q}$ , whiter in  $\mathcal{A}$ : scaling across hind margins of tergites narrowish, gleaming sericeous yellowish to golden, that across tergite 1 in 2 distinctly broader, more conspicuous and more yellowish or golden discally and those on rest of tergites in ♀ also more condensed in larger patches on sides; rest of scaling on abdomen above black, much denser in  $\mathfrak{D}$ : scaling on venter whitish to very pale sericeous yellowish or even fulvous yellowish in both sexes, denser across hind margins and along sides; scaling on legs mainly dark. Wings glassy or vitreous hyaline, iridescent, with the base and base of costal cell in of yellowish and base, costal cell and nearly basal half of first basal cell in Q yellowish; costal cell beyond cross vein and base of first basal cell in 3 subopaquely whitish; veins yellowish brownish to brown; apical part of second vein not very recurved; first posterior cell rather broad, very broadly open, longer than discoidal cell, often much so; discoidal cell obtuse or subtruncate apically, its apical vein straight, slightly oblique to hind margin; middle cross vein at about between apical fourth and a little less than apical third of discoidal cell; anal cell rather broadly open; axillary lobe broadish, its hind margin rather sharply curved; alula normally broad; squamae dark brownish, fringed with snow-white hairs; halteres brown, their knobs brown. Head with the interocular space in front of tubercle in 3 about as broad as front part of tubercle or a little more than 2 times width of front ocellus; space on vertex in 2 varying from about 2 to nearly 3 times distance between outer margins of posterior ocelli; frons slightly convex in basal half, distinctly foveately depressed anteriorly, slightly deeper in Q, its greater middle part free of hairs in both sexes; antennae with joint 1 thicker than 2, about 1½-2 times length of 2, joint 3 golf-driver-club-shaped, its broadened base bulging below, its slender part more than half length of broad base; proboscis shortish, about or a little less than 1 mm. long, scarcely or only slightly projecting, shining, its labella shortish, ovoid; palps short. Legs without any spines on front femora; middle ones with 1 or 2 spines on lower anterior and medial part; hind ones with 2 or 3 spines on lower outer apical aspect and about 2 apically above; basal joint of front tarsi in ♀ without long hair-like spicules. Hypopygium of 3 very similar to that of atrella, but basal parts relatively shorter and the lateral struts distinctly longer.

From 36 33 and 8  $\ensuremath{\mbox{QQ}}$  (types in the South African Museum).

Length of body: about 5–6 mm. Length of wing: about  $5\frac{1}{2}$ – $6\frac{1}{2}$  mm.

Locality: Western Cape: Bulhoek between Clanwilliam and Klawer in the Olifants River Valley (Mus. Exp., Oct. 1950) (types); Citrusdal Dist. in the Olifants River Valley (Mus. Exp., Nov. 1948).

This species is very near atrella from which the  $\Im$  may at once be distinguished by the pale or sericeous yellowish hairs on sides of frons anteriorly and sides of face, the conspicuous fulvous yellowish mesopleural tuft, pale hairs on coxae, whitish fringe of squamae and bands of very pale scaling across hind margins of tergites. The  $\Im$  is more difficult to separate from  $\Im$  of atrella, but differs in having only the hairs on sides of tergite  $\Im$  and base of  $\Im$  white (in atrella entire sides of  $\Im$  and  $\Im$  white), in having comparatively fewer dark hairs and more pale scaling on sides of thorax in front, denser yellowish scaling on venter below, a distinctly broader axillary lobe of which the hind margin is more sharply and less regularly curved, and darker tibiae.

#### Lomatia eremia n. sp.

Body, including proboscis and legs, black, the labellar lobes sometimes tending to be more brownish. Vestiture with the hairs on entire head in front in 3 black, that on greater part of frons, on antennae above and densely below in 2 as well as some hairs on lower parts of genae also black; that on extreme sides of frons anteriorly, intermixed hairs on antennae below, that on sides of face and on upper parts of genae in Q sericeous whitish; hair on thorax and scutellum above and on pleurae and coxae in d entirely black; that in collar-region and on thorax and scutellum above, including prealar, postalar and scutellar bristles, and hair on propleural part and on all the coxae in Q black; intermixed hairs on sides of thorax in front of wing-bases, that densely in mesopleural tuft, on metanotum and on pleurae sericeous whitish in \$\inp \; fine erect hairs on abdomen discally above predominantly dark or black; the dense hair on sides in 3 in form of a conspicuous contrasting silvery white patch on sides of apical half of tergite 2 and on entire side of 3 and some white hairs on sides of tergite 1; that on sides basally of tergite 1 and basal half of 2, however, black, with the tufts on sides of rest of tergites very dark blackish brown to black; that on sides of abdomen in Q also black on sides of tergites 2-7, but entirely snow-whitish on sides of tergite 1 and extreme base of 2; pale scaling above gleaming sericeous whitish, and, in Q, practically represented only across hind margin of tergite 1 and on sides of other tergites, the greater part of disc being covered with dark or graphite-like scaling; that on venter whitish; that on legs appearing predominantly dark or graphite-like or black, gleaming greyish in certain lights. Wings vitreous or glassy hyaline, iridescent, the base, alula and basal part of costal cell up to cross vein in 3 and also entire costal cell and along anterior basal part of first basal cell in  $\circ$  opaquely yellowish to pale yellowish brownish; veins yellowish brownish to dark brownish; basal comb vestigial; first posterior cell broadly open, not narrowed apically, much longer than discoidal cell; the latter truncate or subtruncate apically; middle cross vein varying in position from a little less than apical third to a little less than apical fifth of discoidal cell; alula and axillary lobe normally reduced; squamae brownish to dark brownish, its fringe blackish brown in  $\delta$  and white in  $\mathfrak{P}$ ; halteres brownish, the knobs chocolate-brownish above. *Head* with the interocular space in front of ocellar tubercle in  $\Im$  as broad as narrow front part of tubercle or front ocellus; space on vertex in  $\Im$  about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons shining in both sexes, only gradually and slightly broadened apically in  $\Im$ , foveately depressed anteriorly, slightly more so in  $\Im$ , the hairs anteriorly confined to sides; face slightly convex medially; antennal joint 3 broadened golf-driver-club-shaped basally below, the lower basal part bulging, the styliform part rather stoutish; proboscis shortish, with only the apical part of labella projecting beyond buccal cavity, the labellar lobes shortish and ovoid, much shorter than rest of proboscis. Legs usually with 1 spine on middle femora; hind ones usually with 3 spines on outer lower apical part and with about 2 small apical spines above; basal joint of front tarsi in  $\Im$  without any longish bristly spicules below. Hypopygium of  $\Im$  like that of atrella (text-fig. 108, a), but differing in having relatively longer lateral struts and a larger basal strut (text-fig. 108, b) which is differently shaped.

From 2 33 and 6 99 (types in the South African Museum and paratype in the Commonwealth Institute).

Length of body: about  $5\frac{2}{3}$ -7 mm. Length of wing: about 6-7 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938) (types). Karoo: Doring River (Ogilvie, 3 Nov. 1931).

Very near atrella from which it may however be distinguished by the absence of a distinct pale tuft on sides of face in 3, deeper foveate depression on from anteriorly, distinctly and relatively narrower interocular space in 3, entirely or predominantly black hair on coxae in 9 and slightly less extensive white hair on sides of tergites 1 and 2 in 9. From 3 of melanthia the 3 may at once be distinguished by its relatively broader interocular space, anterior frontal depression, less extensive silvery patch on sides of abdomen, more truncate discoidal cell, etc.

# Lomatia cinereola n. sp.

Body black; buccal rim, proboscis, palps, and tibiae reddish brownish to deep castaneous brownish. Vestiture with the hairs on frons anteriorly, intermixed hairs on antennae below and the hair on sides of face and genae sericeous whitish; that on basal half of frons, antennae above, numerous bristly hairs on antennae below and hairs on lower parts of genae black; dense hair in mesopleural tuft and that on pleurae predominantly sericeous whitish in both sexes; that on prosternal part tinted slightly pale sericeous yellowish in certain lights; that on sides of thorax in front of wings composed of intermixed black bristly hairs and whitish ones; that in collar-region black; that on disc of thorax and scutellum, especially in  $\delta$ , composed of intermixed black and white hairs, sparser and more predominantly black in  $\mathfrak{P}$ ; prealar, postalar and scutellar bristles black in both sexes; hairs in metanotal tuft also with numerous black ones and with numerous intermixed black hairs on prosternal part in  $\delta$ ; hair on abdomen discally predominantly whitish in  $\delta$ , dark only posteriorly from

tergite 5, but predominantly dark in 9, that on sides of tergite 1 and greater part of 2 sericeous whitish, some hairs on sides of apical half of tergite 2 and on sides of 3-7 (or 8) blackish brown, tinted coffee-brownish in certain lights; hair on sides of abdomen in Q shorter than in Q; that on venter whitish in both sexes; scaling above in form of dark and pale hair-like scaling, the latter gleaming slightly pale sericeous yellowish on thorax and scutellum and more sericeous whitish in the narrowish, but conspicuous, transverse bands across tergites on abdomen above, that laterally tending to form denser tufts; scaling on venter dense, whitish; that on legs gleaming greyish yellowish on anterior surfaces, more greyish whitish on lower and hinder surfaces, but appearing dark or brownish graphite-like in certain lights. Wings predominantly vitreous hyaline, iridescent, the base, alula, entire costal cell and base of first basal cell in both sexes, and to a certain extent extreme base of marginal cell in 9, opaquely yellowish brownish; veins brownish to dark brownish, more yellowish towards base; basal comb normally reduced; first posterior cell not narrowed apically, a little longer than discoidal cell; the latter subacute to almost acute apically, its apical cross vein usually feebly sinuous; middle cross vein at a little less than apical fourth to a little less than apical fifth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely brownish, fringed with white hair; halteres brown, the knobs yellowish brown to brown above. *Head* with the interocular space in front of tubercle in 3 narrow, only about, or a little broader than front ocellus; space on vertex in 2 about 2 times distance between outer margins of posterior ocelli; frons foveately depressed anteriorly; face convex medially; antennal joint 3 broadened bulb-like to almost golf-driver-club-like basally below; proboscis slender, projecting much beyond buccal cavity, its labellar lobes narrowish, pointed apically; palps rather long and slender, quite as long as antennae. Legs with 1 spine on middle femora below; hind ones with about 2 or 3 spines on lower outer apical part and 2 apical ones above; basal joint of front tarsi in ♀ without very long bristly spicules below. Hypopygium of ♂ resembling that of atrella (cf. text-fig. 108, a), with the basal strut similarly shaped, but with the neck-region of basal parts less narrow and the beaked apical joints appearing shorter, broader and more leaf-shaped.

From 2 33 and 2 99 (types in the Transvaal Museum and paratypes in the South African Museum and Commonwealth Institute).

Length of body: about 6-7 mm. Length of wing: about  $6\frac{2}{3}$ -7 mm.

Locality: Karoo: Willowmore (Brauns, April 1923 (types); Willowmore (Brauns, Jan. 1922); Doring River (Ogilvie, 3 Nov. 1931).

Easily recognized by the whitish hair on sides of thorax, pleurae and sides of tergites 1 and 2 in both sexes, the rather conspicuous, but narrowish, bands of whitish scaling on abdomen and the markedly long palps. From *latiuscula*, which it superficially resembles, it may be distinguished by the less pale tibiae, brownish knobs of halteres, more golf-driver-club-shaped third antennal joints, deeper and more foveate frontal depression, distinctly much longer palps, etc.

From  $\varphi \varphi$  of albizonata, plocamoleuca, atrella, and eremia the  $\varphi$  may be distinguished by the long palps and relatively longer proboscis, etc.

#### Lomatia namaqua n. sp.

Body black; buccal rim, proboscis and tibiae dark blackish brown or dark reddish brown. Vestiture in 3 with the hairs on entire frons, antennae above and densely below as well as a few hairs on lower parts of genae in & black; that in a tuft on each side of frons anteriorly just above level of antennae, that on sides of face and greater part of genae sericeous whitish; that in mesopleural tuft and on pleurae very pale sericeous yellowish or straw-coloured; some or numerous intermixed black hairs on propleural part; hairs in collar-region black; that on thorax above sparse and composed of fine intermixed pale and black hairs: prealar, postalar and scutellar bristles black; hair in metanotal tuft predominantly black; that on sides of apical part of tergite 2 and on sides of 3 conspicuously and contrastingly silvery whitish; that on sides of tergites 1 and 2 whitish, less dense and flanked by black hairs basally and on extreme sides; tufts on sides of rest of tergites black; hairs on venter sericeous whitish; pale scaling above, where still indicated, straw-coloured; that on legs grevish whitish, but appearing dark in certain lights. Wings vitreous hyaline, iridescent, the extreme base blackish brown, the base, alula and basal part of costal cell up to cross vein subopaquely pale yellowish brownish; veins brownish, the first main vein and bases of others more yellowish brownish; basal comb vestigial; first posterior cell not narrowed, broadly open apically, longer than discoidal cell; the latter subtruncate to truncate apically; middle cross vein between a little less than apical third to halfway between apical third and apical fourth



TEXT-FIG. 109. Side view of hypopygium and dorsal view of right beaked apical joint of *d Lomatia namaqua* n. sp.

of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely brownish, fringed with whitish hair; halteres brownish, the knobs brownish or dark brownish above. Head with the interocular space in front of tubercle in 3 a little broader than front ocellus, about as broad as length of antennal joint 2; frons foveately depressed anteriorly, the hairs confined to sides of depression; face convex medially; antennal joint 3 broadened golf-driver-club-like basally below, the lower basal part bulging; proboscis shortish, with only the apices of labella projecting a little beyond buccal cavity, the labellar lobes shortish and ovoid, but much shorter than rest of proboscis. Legs usually with 1 spine on middle femora below; hind ones with about 2 spines on outer lower apical part and at least 2 apical ones above. Hypopygium shown in text-fig. 109.

From 2 33 in the South African Museum. Length of body: about  $5\frac{1}{2}-5\frac{2}{3}$  mm.

Length of wing: about  $5\frac{2}{3}$ -6 mm.

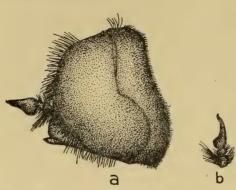
Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

Distinguished from *cinereola* by the predominantly black hair on frons, more conspicuous and contrasting silvery white patch on sides of part of tergites 2 and 3, much shorter proboscis, shorter palps, clearer part of costal cell beyond cross vein, etc.

Lomatia conostoma n. sp.

(Syn. = mitis Bezzi, nec Loew, p. 81, Broteria (Ser. Zool.), xx, fasc. ii, 1922.)

Body black; buccal rim, proboscis and legs dark castaneous brownish to blackish brownish, the buccal rim and tibiae sometimes more sienna or reddish brownish. Vestiture with the hairs on more than basal half of frons, antennae above and intermixed hairs on antennae below, especially in &, black, sometimes with some black hairs on lower parts of genae as well; hair on sides of frons anteriorly, that densely on antennae below, sometimes entirely in Q, that on sides of face and on genae sericeous whitish to silvery whitish; that in mesopleural tuft and pleurae sericeous whitish or straw-coloured yellowish to even slightly pale sericeous yellowish; that on propleural part usually tinted slightly more sericeous yellowish in specimens with white hair on pleurae; that on prosternal part and front coxae, in 3 especially, with some intermixed black hairs; hair on thorax and scutellum above relatively sparse and predominantly black; those in collar-region and the prealar, postalar and scutellar bristles black; intermixed whitish or pale hairs, however, present on sides of thorax in front of wings and just above wings; some or numerous intermixed black hairs also present in metanotal tuft; hair on abdomen above predominantly or entirely black, that on sides of apical part of tergite 2 and on sides of 3 in form of a conspicuous contrasting silvery whitish patch in 3; that on sides of tergites 1 and 2 composed of sericeous whitish hairs and black or dark ones, the latter at base of tergite 1 and on sides of 2; tufts on sides of rest of tergites dark blackish brown or tinted dark coffee-brownish; hair on sides of abdomen in ♀ slightly shorter than in 3, sericeous whitish on sides of tergites 1 and base of 2, black or dark coffee-brownish on sides of the remaining tergites; hair on venter sericeous whitish; scaling above with black scales evident discally on abdomen above in 2, the pale ones gleaming sericeous whitish in both sexes and arranged as narrow transverse bands across hind margins of tergites, those on sides usually denser and more tuft-like; pale scaling of thorax antero-laterally sometimes tinted slightly more sericeous yellowish; that on venter dense, pale sericeous yellowish in certain lights; that on legs appearing greyish whitish on hinder and lower surfaces, gleaming greyish whitish, dull greyish yellowish to dark graphite-like on anterior and upper surfaces in certain lights. Wings vitreous hyaline, iridescent, the extreme base smoky or blackish brown, the base, alula and basal part of costal cell up to cross vein in 3 and in 2 also entire costal cell and along anterior basal part of first basal cell tinged subopaquely or opaquely yellowish brownish to dull smoky brownish, usually slightly more so in \$\infty\$; veins brownish to dark blackish brownish, the first main vein and bases of others usually more yellowish brownish; basal comb reduced; first posterior cell not narrowed, very broadly open apically, longer than discoidal cell; the latter subtruncate to truncate apically; middle cross vein varying in position from about halfway between apical third and apical fourth to halfway between apical sixth and apical seventh of discoidal cell, more often however between a little less than or a little more than apical fourth of the cell; alula and axillary lobe normally reduced, though lobe of alula at base of axillary lobe is distinct and the latter



Text-fig. 110. (a) Side view of head of 3 Lomatia constoma n. sp. (b) Right antenna of  $\mathcal{P}$  of same species (from inner side).

is slightly more arcuately rounded in 3; squamae opaquely greyish whitish to brownish, darkbordered, fringed with white hairs; halteres usually dark brownish, the knobs dark chocolate-brownish above, sometimes tending to be yellowish brownish or smoky greyish above. *Head* (text-fig. 110) with the interocular space in front of tubercle in 3 usually a little broader than front ocellus to about as broad as length of antennal joint 2; space on vertex in 3 about, or a little more

than, 2 times distance between outer margins of posterior ocelli; froms foveately depressed anteriorly, only gradually and slightly diverging anteriorly in  $\mathcal{Q}$ , the hairs anteriorly confined to sides; face (text-fig. 110, a) markedly conical or subconically prominent from side, more so than in other species, its apical part cone-like, smooth and shining; antennal joint 3 (text-fig. 110, a)

characteristic in  $\Im$ , much, but gradually, broadened basally, ham-shaped or leg-of-mutton-shaped, in  $\Im$  more rapidly broadened basally below, more bulb-shaped or almost golf-driver-club-shaped (text-fig. 110, b), the styliform part in  $\Im$  thus longer and more slender; proboscis rather short, usually confined to buccal cavity or with only the apices of labella projecting slightly, the labellar lobes shortish, narrowish, or only slightly ovoid, but much shorter than rest of proboscis. Legs with 1 spine on middle femora below; hind ones usually with 2 spines on outer lower apical part and 1 or 2 apical spines above; basal joint of front tarsi in  $\Im$  without distinct, long, bristly spicules below. Hypopygium of  $\Im$  as shown in text-fig. 111.

From 16 33 and 22 99 (types in the South African Museum, paratypes in the Commonwealth Institute and in Transvaal and Albany Museums).

Length of body: about 5-7 mm.



TEXT-FIG. 111. Side view of hypopygium and dorsal view of right beaked apical joint of & Lomatia conostoma n. sp.

Length of wing: about  $5\frac{1}{2}$ -7 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938) (types). Karoo: Murraysburg Dist. (Mus. Exp., March 1931); Willowmore (Brauns); Victoria West Dist. (Mus. Exp., March 1931); Doring River (Ogilvie, 3 Nov. 1931). South-eastern Karoo: Resolution in the Albany Dist., near Grahamstown (Walton, Jan.-April 1928 and 21 March 1928); Fort Brown (Walton, 20 March 1928).

Easily recognized by its prominent subconical or conically produced face and broadened ham-shaped third antennal joints. The species appears to be slightly variable; the pale hair on mesopleuron and pleurae being tinted slightly more straw-coloured yellowish or pale sericeous yellowish instead of whitish in some specimens; the black hair on thorax above denser; and the third antennal joints in some \$\phi\$ tend to be more golf-driver-club-shaped at base than bulb-shaped. The \$\mathcal{G}\$-specimen from Willowmore, in the collection of the late Dr. Brauns, is labelled as mitis Lw. and probably represents the specimen to which Bezzi refers on p. 81 in 'Broteria (Ser. Zool.), xx, 1922'. As this specimen does not agree with Loew's description of mitis (p. 209, Dipt. Faun. Südafr., i, 1860) or with the \$\mathcal{G}\$-specimen identified as such in this revision, this identification is obviously erroneous.

#### Species not identified

Three species of *Lomatia* which have been described from Southern Africa and which I have not seen or been able to identify are:

Lomatia loewi Bezz. (p. 613, Trans. Ent. Soc. Lond., 1911), n.n. for Lomatia inornata Lw. (p. 209, Dipt. Faun. Südafr., i, 1860). (Probably only a small form of mitis (see under that species).)

Lomatia melampogon Lw. (p. 207, Dipt. Faun. Südafr., i, 1860).

Lomatia rufa (Wied.) (p. 291, Aussereurop. Zweifl. Ins., i, 1828), described as an Anthrax.

# Aphoebantus and Petrorossia-group

The genera Aphoebantus Lw., Cononedys Herm. and Petrorossia Bezz., which are referred to this group of the Lomatiinae, are characterized by the forward bend or kink near apex of second main vein, the relatively long costal cell, the short or faint bisecting line from posterior indentation in eyes, the more cylindrical abdomen, comparatively less dense hair on body, absence of a dense and conspicuous tuft on antennae below and by the presence of a distinctly visible terminal joint to third antennal joint and which bears a style.

#### Gen. Petrorossia Bezz.

(Bezzi, p. 32, Zeitschr. f. Hymen. u. Dipt., viii, 1908; Bezzi, p. 615, Trans. Ent. Soc. Lond., 1911; Becker, pp. 435 and 468, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, pp. 5 and 119, Ann. S. Afr. Mus., xviii, 1921; Bezzi, pp. 27 and 151, The Bombyliidae of

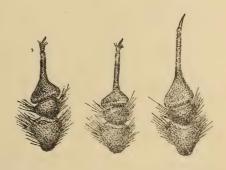
the Ethiopian Region, 1924; Bezzi, pp. 209 and 213, Bull. Soc. Roy. Ent. d'Egypte, xviii, 1924; Curran, pp. 35 and 38, Bull. Amer. Mus. Nat. Hist., lvii, 1927–8; Engel, p. 407, Die Fliegen d. Pal. Reg., lief. 99, 1936; Austen, pp. 8 and 108, Bombyliidae of Palestine, 1937.)

This genus was erected by Bezzi in 1908 to contain an old Palaearctic species, Bibio hesperus, described by Rossi in 1790 and originally placed in the family Bibionidae. Subsequently certain species of Bombyliidae, described as species of Anthrax, by Wiedemann, Macquart and Loew, were incorporated in the genus Petrorossia by Bezzi. At present about 19 Palaearctic and Ethiopian species, including the 6 new forms described in this revision, are included in this genus. Within the geographical limits dealt with in this work at least 9 species and their varieties are known. The characters of this genus, as based on the South African forms in the collections before me, are as follows:

Body tending to be elongate; abdomen, though elongate, usually slightly flattened dorso-ventrally, rarely tending to be cylindrical even in 33; head, thorax, scutellum and pleurae usually black; hind margin of metapleural part, sides of abdomen and the venter yellowish reddish or orange reddish to a variable extent, the red sometimes confined to extreme sides of tergites and to hind margins of sternites, sometimes very extensive, the sides of abdomen being broadly reddish, with only a central, longitudinal, black band and in some species the abdomen may be entirely or predominantly reddish; legs either entirely yellowish in both sexes or the femora may be darkened to a variable extent in 33 or even in 99, or the front and hind ones may be darkened to a variable extent, their spines and spicules always black. Vestiture less dense, shorter and less conspicuous than in Lomatia; that on frons and face shortish, fairly dense, not shaggy; that on occiput fine, very short and dense; that in collar above, humeral part, sides of thorax, in mesopleural tuft, propleural part and sides of tergite 1 longer, more shaggy in appearance than the rest; that on disc of thorax usually short and sparse, sometimes very much so; that on rest of abdomen less dense; greater part of pleurae without long hair, the hinder half or metapleural part bare and a metanotal tuft absent; prealar, postalar and scutellar bristles usually well developed; a greyish or sometimes silvery gleaming pruinescence usually present on sides of frons anteriorly, on face, sides of head and on pleurae; scaling usually well developed, short, fine, hair-like and fairly dense above, either dull greyish yellowish or yellowish, sometimes in form of very dense, brilliantly gleaming, deep reddish golden, pile-like scales, especially on sides of thorax; scaling on pleurae relatively sparse, present only on sternopleuron and as two small tufts on metapleural plate, longer and more hair-like than that above, whitish in most species, rarely golden; that on coxae like that on pleurae; scaling on venter hair-like, usually whitish; that on legs more lanceolate, usually whitish. Wings usually elongate, usually longer than body, relatively narrowish, either entirely hyaline or infuscated at base and in costal part in 33 and in basal two-thirds in 99, or tinged to a variable extent in both sexes, or uniformly infuscated throughout,

or darkly infuscated in form of a distinct pattern in both sexes; second vein originating obtusely at about midway between base of third vein and middle cross vein or a little beyond middle, with a distinct forward bend or kink near its end as in the Tomomyzinae, the end bent upwards, sometimes in form of a deep loop; two submarginal cells present, the base of vein between them sometimes bent at right angles to third vein and with a short stump at bend; first posterior cell rather long, much longer than discoidal cell, open apically; middle cross vein always a little before middle of discoidal cell; apical part of latter broad and its apical vein S-curved; alula either lobe-like or much reduced or even vestigial; axillary lobe either broadish, roundly lobe-like, or narrow, reduced, even narrower than anal cell, its base acute and giving the wings a pedunculate appearance (text-fig. 118 below); squamal fringe either distinct or very poorly developed. Head globular; occiput with the medial sulcation immediately behind ocellar tubercle slit-like or gap-like; eyes large, angularly indented behind, a distinct, short bisecting line extending forwards from indentation; interocular space in front of tubercle in 33 varying in width from about as broad as tubercle to sometimes nearly 3 times width of latter; space on vertex in 99 from about  $1\frac{1}{2}$  to nearly 3 times width of tubercle; ocellar tubercle itself small, prominently raised, pimple-like; frons sometimes shining in basal two-thirds in both sexes, centrally longitudinally depressed for some distance in front of tubercle in  $\mathfrak{P}$ ; face slightly, but uniformly, convex, not turnidly prominent or conically produced; buccal cavity fairly deep; genal furrows only indicated on sides of lower part of face; proboscis short, confined to buccal cavity, stumpy, its labellar lobes broad, ovate, subequal in length to rest of proboscis, sometimes a little shorter, with longish hair-like spinules; palps very short, club-like, broadened in apical part, or leaf-shaped and somewhat flattened, their bases stalk-like, the apical and lower parts with stiffish dense hairs; antennae (text-fig. 112) separated at base, joint 1 broadish, cupshaped, lodging the somewhat globular joint 2, both joints 1 and 2 with

bristly hairs above and below which are not very dense and tuft-like as in Lomatia; joint 3 either broadened bulb-like basally or with the base broad and discoidal, the rest of joint very slender, rod-like, ending in a distinct joint bearing a fine style and sometimes also a crown of short hairs. Abdomen with the line-like transverse depression across base of tergite 2 rather deep and distinct. Legs with the front coxae sometimes longer than half length of front femora; femora with longish or short, fine, pale hairs along outer and lower surfaces, especially on front and middle



TEXT-FIG. 112. Inner views of right antennae of PP of Petrorossia hesperus subsp. tropicalis Bezz., Petrorossia plerophaia n. sp., and Petrorossia fulvipes (Lw.).

ones; front and middle ones rarely with 1 or 2 or a few spinelets below; hind ones with a variable number of spines on outer lower apical part and on upper outer apical part, with a distinct row of spines from base to apex on inner lower part in 33 of some species; tibiae with the spicules in more or less four rows, those on hind tibiae more developed, those in inner upper row on front ones absent or only present near apex, apical spurs not very long; tarsi slender, the front ones slightly modified in both sexes, more so in 99 and more hairy from joint 2; claws well developed, bent down apically; pulvilli well developed, flattened, reaching bent-down apices of claws. Hypopygium of 33 (text-figs. 113, 115, 116, 117, 119, 120 and 121) with the basal parts convex, shell-like, covered dorsally and along outer apical margin with fairly stoutish, conspicuous and longish, bristly hairs, the base usually drawn out into a sort of scoop-like process; beaked apical joints either more or less twisted, curved or scroll-like, the dorsal or outer apical part excavated or hollowed, produced apically into a spine-like process or into upper and lower processes or even three processes, the upper one usually directed outwards over lower one, the dorsum of these joints usually with hairs or a tuft; aedeagus with a ventral process below, formed by the union of a ramus on each side from sides of basal parts, the apical part of this process either pick-like, blade-like, or ending in a bidentate or bifid process which is directed downwards; lateral struts shoe-horn-shaped, sometimes broadish and long; basal strut ham-shaped, sub-racket-shaped or choppershaped, its apical margin sometimes with a ledge-like extension.

There is no doubt that this genus is very near the American genus Aphoebantus Lw. which is also supposed to be represented in North Africa and the Mediterranean region. According to descriptions of the latter, this genus differs from it in having antennal joint 3 slender, rod-like and rapidly broadened bulb-like or discus-like basally, not conical or pyriform, ending apically in a joint bearing a style and sometimes also a crown of short hairs; second vein originating obtusely more or less midway between base of third vein and middle cross vein or slightly beyond middle; slightly less dense hairs on body; and in having the hind margin of scutellum dull, not shining. From Lonatia Meig. it may at once be distinguished by the absence of dense shaggy hairs on antennae below and on body, especially sides of abdomen, the presence of a distinct bisecting line from indentation in eyes behind, the second vein originating obtusely farther away from base of third, presence of a forward bend near end of second vein, presence of a distinct apical joint to antennal joint 3, etc. The species represented in the collections before me may be more or less divided into three distinct sections which may be recognized and distinguished by certain collective characters given in the following key and under the respective sections.

## Key to the South African species of Petrorossia

I. (a) Body above on the whole more hairy in appearance, the erect hairs, especially on frons, face and thorax above longer and denser; depressed, fine, hair-like scaling above usually dull yellowish or only faintly gleaming golden, not in form of dense, brightly gleaming, golden pile; abdomen predominantly black above and any red, if present,

narrowly confined to extreme sides or to sides of hind margins of tergites or to venter; anterior coxae only a little more than half or sometimes a little less than half length of front femora; femora, especially anterior and middle ones, with longish fine hairs on outer and lower surfaces, hind ones in 33 without any or with much fewer spines on inner lower part; interocular space in 99 relatively broader, at least  $2-2\frac{1}{2}$ , or slightly more, times as broad as tubercle; frons dull.

- (b) Body above appearing less hairy, the hairs on frons, face and thorax distinctly less dense, shorter; depressed fine scaling above, especially on thorax and scutellum, in form of conspicuous, dense, brightly gleaming, golden to reddish golden pile; abdomen predominantly yellowish reddish or orange reddish and, if black above, the sides distinctly more broadly and extensively reddish and the black only band-like; anterior coxae usually much more than half as long as front femora; femora with much shorter, less conspicuous, fine hairs on outside below, hind ones in 33 with a distinct row of spines along inner lower part; interocular space in \$\text{Q}\$ distinctly much narrower, usually scarcely or less than 2 times width of tubercle; from shining, even in 33.
- 2. (a) Wings not markedly elongate, usually predominantly or entirely hyaline and if slightly tinged, the infusion not in form of a distinct dark and characteristic pattern; second vein normally and comparatively shallowly looped at end; alula and axillary lobe distinctly more developed, the base of wings not pedunculate in appearance; interocular space at narrowest part, in front of tubercle, very much broader in ♀♀ than in ♂♂.

  3 (hesperus-section) (p. 315)
  - (b) Wings markedly elongate and darkly infuscated, the infuscation in form of a distinct or characteristic pattern; second vein more suddenly and deeply looped at end, almost recurved; alula and axillary lobe narrower, the former vestigial and the latter much reduced, the base of wings thus pedunculate in appearance; interocular space in front of tubercle only a little or scarcely narrower in 33 than in \$\pi\$.

. . . 4 (vinula-section) (p. 319)

3. (a) Wings almost entirely hyaline, only faintly yellowish in costal cell; sides of abdomen less broadly or extensively yellowish and hind margins of posterior tergites (or tergite) less broadly reddish; femora in ♂ usually more extensively darkened basally to a variable extent and hind ones in ♀♀ usually more darkened apically; slightly smaller forms, about 4-8 mm. long, with a wing-length of about 4-6-8-5 mm.

parts or basal halves of marginal and submarginal cells, base or almost basal half of first posterior cell, more than basal half of discoidal cell and to a fainter extent basal parts of third and fourth posterior cells and in anal cell, this infuscation imperceptibly grading into hyaline part; femora in  $\delta \delta$  usually less darkened basally, more often the front and middle ones entirely yellowish and hind ones in  $\mathbb{Q}\mathbb{Q}$  usually less or not darkened apically; slightly larger forms, about  $7\frac{1}{2}-9(10)$  mm. long, with a wing-length of about 8–10 mm. . . . . other forms of  $\delta \mathbb{Q}$  hesperus subsp. tropicalis Bezz. (p. 318)

- 4. (a) Wings predominantly very dark chocolate brownish, the apical part not uniformly and entirely hyaline, the apical part of marginal cell and sometimes the area along vein between submarginal cells infuscated; clear or whitish areas or elongated spots present in apical part of discoidal cell, in middle parts of second to fourth posterior cells, in apical parts of submarginal cells and to a fainter and lesser extent at apex of marginal cell and just beyond middle of first submarginal cell; praediscoidal spot more conspicuous; basal two-thirds of axillary lobe clear or hyaline; hind femora more conspicuously and more extensively darkened along upper part or upper apical part; face with more numerous or with mainly black hairs; posterior part or half of abdomen above with more numerous black bristly hairs.
  - (b) Wings predominantly sienna or coffee-brownish or yellowish brownish, the apical part, including apex of marginal cell, from apex of costal cell across to apex of first posterior cell entirely and uniformly hyaline, the infuscated part appearing distinctly more uniform; elongated or less infused areas in the cells less distinct; praediscoidal spot small, faint and indistinct; more than basal two-thirds or entire axillary lobe clear;

- 5. (a) Apical parts of submarginal cells not uniformly and entirely hyaline, the infuscation in wings extending along vein separating them; clear spots in cells clearer, more evident; anal cell dark like rest of infused part; basal two-thirds of axillary lobe more hyaline.
  - (b) Apical parts of submarginal cells uniformly and entirely clear or only greyish hyaline, there being no infusion along vein separating them; less infused areas or spots in cells duller, not so conspicuously evident; greater part of anal cell clearer, less infused, more greyish hyaline; greater part of axillary lobe also less hyaline, more greyish hyaline.
- 6. (a) Wings (text-fig. 118, upper figure) with the alula distinctly less reduced, the axillary lobe distinctly broader, as broad as or broader than anal cell, the basal part of wings thus not appearing pedunculate; base of vein between submarginal cells more constantly bent down at right angles and there with a more constant stump; interocular space in front of ocellar tubercle in ♂♂ a little broader than tubercle, about 2 or a little more times width of tubercle in ♀♀.
  - (b) Wings (text-fig. 118, lower figure) with the alula very much reduced or vestigial, the axillary lobe also distinctly narrower, very narrow basally, at broadest part usually narrower than anal cell, this basal part of wing thus appearing pedunculate; base of vein between submarginal cells not constantly tending to be bent down at right angles and more rarely with a stump; interocular space in front of tubercle in known ♂♂ as broad as tubercle and about 1½ to scarcely 2 times width of tubercle in ♀♀.

· · · · · 8 (33), 9 (99)

- 7. (a) Wings in ♀ (occasionally in ♂) with a deep yellowish brownish or brownish infusion, occupying a little less than or much less than entire basal two-thirds to a variable extent, at most extending to near apex of costal cell and across apex of discoidal cell, extreme base of second posterior cell to apical part of third posterior cell; wings in ♂ tinged greyish, only the base, costal cell, basal part of first basal cell and basal parts of second basal and anal cells more deeply tinged yellowish brownish to a variable extent; hairs and scaling on pleurae and coxae white or whitish; hairs on head in front relatively less dense and shorter, that on face on the whole paler, more whitish or silvery; scaling on body above more golden yellowish; black band on abdomen above broader; coxae tending to be darker.
  - (b) Wings in both sexes equally and uniformly infuscated yellowish brownish or smoky brownish throughout, the base, costal part, first basal cell and to a certain extent second basal cell however slightly darker; hairs and scaling on pleurae and coxae golden yellowish like those in collar and mesopleural tuft; hairs on head in front relatively denser, slightly longer and those on face darker, brownish yellowish to black; scaling on body above deeper golden, more reddish or orange golden; black band on abdomen above narrower; coxae tending to be paler, more yellowish.

    ∴ ∴ ♂♀ fumipennis n. sp. (p. 327)
- 9. (a) Central, discal, black band on abdomen above broad to very broad, much broader than red on sides; wings with the infusion slightly paler, more greyish yellowish or greyish brownish. . . . . . ♀ angustibasalis n. sp. (p. 328)

- (b) Central, discal, black band on abdomen very much narrower than broad reddish sides, the abdomen above being predominantly orange reddish; wings with the infusion on the whole darker, more brownish.
- - (b) Black central band on abdomen very narrow, tending to be broken up into a row of oval discal spots; wings darker, distinctly tinged more uniformly yellowish brownish, with a short stump at bend of bent-down base of vein between submarginal cells; bristly hairs and bristles at base of thorax and across hind margin of scutellum reddish yellowish; smaller form, about 7 mm. long, with a wing-length of about 8½ mm.

### Petrorossia hesperus-section

To this section belong such species as hesperus subsp. tropicalis Bezz., media Séguy and fuscicosta Bezz. in which the wings are usually predominantly hyaline or only slightly or faintly tinged basally and costally, the alula is broadish and lobe-like and the axillary lobe is also broad; the interocular space in front of ocellar tubercle is very much and markedly broader in  $\mathcal{P}$  than in  $\mathcal{P}$ ; and the apical margin of last sternite in  $\mathcal{P}$  slightly incised in the middle. Hypopygium of  $\mathcal{P}$  (text-fig. 113) with the beaked apical joints excavated or hollowed out dorsally, boat-like, the inner apical part produced into an upwardly directed spine-like process; the ramus, on each side from each basal part, uniting below aedeagus to form a pick-like downwardly directed aedeagal process; basal strut with a ledge-like extension on each side of its apical margin.

# Petrorossia hesperus subsp. tropicalis Bezz.

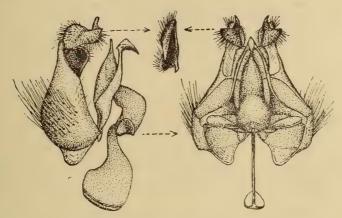
(Bezzi, p. 168, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 152, The Bombyliidae of the Ethiopian Region, 1924.)

This Ethiopian species of *Petrorossia*, which appears to be very widely distributed over the drier parts of the African continent and which appears to have become adapted to various types of environment within this great geographical range, was described by Bezzi as a distinct subspecies of the Palaearctic and North African species *hesperus* Rossi. As there are no specimens of *hesperus* s. str. in the collections for comparison I have to rely on descriptions of this Palaearctic species. According to the more comprehensive description of this species as given by Engel (p. 411, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936) there appears to be, as Bezzi maintained, scarcely any external or structural differences between the South African forms and the European species. Pending a more detailed comparison of these two forms the South African forms are provisionally retained as a subspecies of *hesperus*. From the large number of specimens in the collections before me it is evident that even this subspecies *tropicalis* is not homogeneous, but variable in size, in the extent to which the femora are blackened, the extent to which dark hair is present on frons, the colour of the rest of the

hair and in other details given in the key and the description below. The chief characters of this subspecies are as follows:

Body variable in size, predominantly black; apical margin of antennal joint 1, buccal rims and to a variable extent inside of buccal cavity pallid or vellowish whitish; hind margin of metapleural plate, hind margin of tergite 1, sides below or extreme sides of abdomen, more broadly on sides of tergites 2 and 3, sometimes even hind margins of tergites on sides above, hind margins of sternites, more broadly on last two sternites, especially in Q, or sometimes even greater part of venter, yellowish, ochreous yellowish or orange reddish to a variable extent; legs with the coxae usually dark or black in 3, sometimes infused with yellowish reddish, especially on middle and hind ones in some QQ; femora yellowish or reddish yellow in 3, the front and middle ones darkened or blackened basally, in basal halves, or even to much beyond middle, the hind ones entirely or predominantly darkened, in Q with only the bases of front ones and apical parts of hind ones darkened, or all the femora in some QQ entirely vellowish; tibiae and more than basal halves of tarsi yellowish in both sexes, the hind tarsi and upper apical parts of posterior tibiae tending to be more brownish in some specimens. Vestiture with the hair on head gleaming pale sericeous yellowish to whitish, either without any, with a few, or with numerous black ones on frons and with some or without any dark ones on antennae above; that on body above gleaming predominantly very pale sericeous yellowish or almost whitish to slightly yellowish in certain lights; base of thorax above with some intermixed dark or black hairs and black bristly hairs across hind border of scutellum; prealar and postalar bristles whitish to pale sericeous yellowish; dense hair on sides of tergite I whitish, rarely tending to be tinted yellowish; that on sides of abdomen and also discally whitish or very pale sericeous vellowish in certain lights; that on mesopleuron and propleural part appearing more whitish than above; that on upper part of mesopleuron sometimes gleaming more sericeous yellowish like that above; hair on hinder half of abdomen and the bristly ones across hind margins of tergites 4-7 (or 8) dark or blackish; those on last three tergites, especially in Q, longer and more conspicuous; hair on venter whitish; fine hair-like scaling above rather dense, appearing predominantly dull greyish to dull greyish yellowish, often with a slight brownish tint in certain lights; that on pleurae cretaceous or snowwhitish; that on venter dense and whitish; that on legs also cretaceous whitish, fine ones along upper surfaces of hind tibiae and tarsi dark. Wings usually predominantly hyaline, the extreme base and costal cell, especially the part behind false costal vein, tinted slightly subopaquely yellowish, but even the bases or basal halves of marginal and first submarginal cells, the entire first basal cell and to a lesser extent the second basal and base of more than basal half of discoidal cells, and even bases of third and fourth posterior cells sometimes tinged yellowish or yellowish brownish to a variable extent, more so in some 29; veins yellowish brownish to brown; end of second main vein beyond the kink not much recurved; base of vein between submarginal cells usually rapidly

bent down at right angles or almost at right angles to third vein and tending to be provided with an indication of a (or a short) stump; alula lobe-like and axillary lobe broadish, broad at base, lobe-like, the wings not appearing pedunculate at base; squamae subopaquely whitish, white-fringed; halteres pale yellowish, their knobs very pale yellowish, almost whitish. *Head* with the interocular space in front of ocellar tubercle in 3 about as broad as, or a little broader than, width of tubercle; space in front of tubercle in 3 varying from 2 to



TEXT-FIG. 113. Side and ventral views of hypopygium, and dorsal view of beaked apical joint, of & Petrorossia hesperus subsp. tropicalis Bezz.

a little more than 2 times width of tubercle; antennal joint 3 (text-fig. 112, left) ending in a joint-like basal element bearing a style and a crown of short hairs. Legs with the front coxae not more than half, usually a little less than half, as long as femora, with longish fine pale hairs on outer and lower surfaces of femora, especially front and middle ones; front and middle femora usually without spines, sometimes however with a minute spine at about middle in some specimens; hind femora with about 3-5 shortish spines on outer lower apical half and from 3 to 10 spinules on upper outer apical aspect, the apical ones the longest. Hypopygium of & (text-fig. 113) with the dorsum of basal parts covered with bristly hairs, the outer margin in neck region however without conspicuous hairs; basal process of each basal part shortish; beaked apical joints excavated or hollowed out dorsally, boat-like (see dorsal view), the outer edge prominently raised rim-like, the inner apical part produced into an upwardly directed spinelike process, with the outer and upper outer surfaces covered with hairs; lateral rami from sides of basal parts uniting ventrally and apically below aedeagus to form a downwardly directed pick-like process; basal strut more or less ham-shaped, its apical margin produced on each side into a ledge-like extension.

In the Commonwealth Institute, British, Transvaal and South African Museums,

Length of body: about 4-8.5 mm. Length of wing: about 4.6-10 mm. Locality: Southern and Western Cape Province, Little Karoo, Koup Karoo Great Karoo, North-western Karoo, Namaqualand, Bushmanland, South-West Africa and Southern Rhodesia. According to Bezzi this subspecies is also found in North-western Rhodesia, Nyasaland, Northern Nigeria and Gambia.

Representatives of this subspecies are fairly common in Southern Africa and have the habit of settling on sand or soil between shrubs and bushes during the warmest part of the day. They also frequent the flowers of Composite-weeds growing in old lands and during spring and early summer they also visit the flowers of various species of Mesembryanthemum. Representatives of this subspecies, occurring in the very dry environments of Bushmanland, along the Orange River and the Huab plateau of South-West Africa, have practically no dark hair on the frons and the femora in the 33 are less darkened. Specimens from the Koup Karoo, Great Karoo and dry western parts of the Little Karoo have more black hair on frons and have at least the basal halves of the front and middle femora in 33 and some 99 blackened. Others found in the Little Karoo and Namaqualand have the front and middle femora darkened to much beyond the middle in the 33 and the entire hind femora dark in both sexes. Females from Southern Rhodesia have the femora entirely yellowish. The wings of some specimens obtained in the more mountainous parts of the western and southern Cape are distinctly more tinged. Two other varietal forms of this subspecies merit separate consideration as they may easily be mistaken for separate species:

One unique 3-specimen, from the Great Karas Mts. in Great Namaqualand, differs from the more typical forms in being relatively larger and bulkier, about 9 mm. long, with a wing-length of about 9.3 mm.; the abdomen distinctly more broadly and more extensively reddened on sides, the hind margin and sides of tergite 2 and the entire hind margins of 3–7 also distinctly reddish; front and middle femora and tibiae entirely pale yellowish and only upper surfaces of hind femora more brownish; bristly hairs on base of thorax and across hind margin of scutellum entirely pale; wings with a more distinct tendency to be tinged yellowish at base, in costal cell, bases of marginal and first submarginal cells, first and second basal cells and basal parts of first posterior, discoidal and fourth posterior cells.

Another unique 3-specimen, from Hex River (9 Jan. 1883), of which the head is missing, was wrongly mistaken for a \$\times\$ and determined as hesperus by Bezzi (p. 120, Ann. S. Afr. Mus., xviii, 1921). It is characterized in being very much larger and bulkier, about 8 mm. long (minus head), with a wing-length of about 10.5 mm.; the abdomen with the reddish on sides much broader, more extensive, the hind margins of all the tergites, but especially 3-7, entirely reddish yellow; hair on thorax above, upper part of mesopleuron and on sides of tergite 1 gleaming distinctly deeper sericeous yellowish to pale golden in certain lights; prealar and postalar bristles reddish golden and hair on sides of abdomen also more yellowish; wings very distinctly more deeply and more extensively tinged yellowish brownish in anterior basal two-thirds, the infusion imperceptibly grading into the more greyish hyaline apical and hinder parts,

the axillary lobe well developed; legs with the front and middle femora and greater part of hind ones as well as all the tibiae and at least basal halves of tarsi yellowish, only the upper apical part of hind femora darkened, the hind femora also with more numerous, about 5–7, spines along outer lower apical part and front ones with about 5 spinules in a row below.

#### Petrorossia vinula-section

To this section belong the species vinula Bezz., masieneënsis n. sp. and plerophaia n. sp. in which the wings are elongate, pedunculate, intensely and extensively infuscated in the form of a distinct pattern, with both the alula and axillary lobe reduced, the second main vein deeply looped at its end and the interocular space in  $\delta\delta$  relatively broad, only a little, or scarcely, narrower than in  $\varphi\varphi$ . Apical margin of last sternite in  $\delta\delta$  arcuately rounded or truncate. Hypopygium of the  $\delta\delta$  (text-figs. 115, 116 and 117, right) with the beaked apical joints elongated, hollowed out above, their apical part twisted upwards and outwards and ending apically in an upper and a lower spine-like process; the upper one directed outwards over the lower (see figures); united apical part (or aedeagal process) of lateral rami produced blade-like; basal strut sub-racket-shaped and without a ledge-like extension along each side of its apical margin.

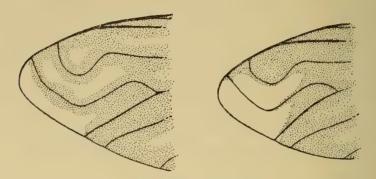
#### Petrorossia vinula Bezz.

(Bezzi, p. 120 and pl. ii, fig. 21, Ann. S. Afr. Mus., xviii, 1921.)

This species and the following two new forms cannot be confused with any other species of *Petrorossia*. It may be recognized by the following characters:

Body black; hind margin of metapleural part, sides of tergites, slightly more broadly on tergite 2, hind margins of sternites or even greater part of venter, last sternite and usually hind margin of last tergite yellowish or orange reddish; legs predominantly yellowish or ochreous yellowish, the coxae tending to be dark, but middle and hind ones sometimes partly yellowish, the upper apical parts or even almost entire upper parts of hind femora, especially in some 33, and in some specimens even the upper apical parts of the other femora and the apical parts of tarsi darkened or blackish; spines and spicules black. Vestiture on head predominantly black on frons and face, with some or numerous golden yellowish intermixed hairs on face especially apically; hairs on antennae above and below black; fine erect hairs on occiput gleaming golden or brownish in certain lights; that around rim of occipital cavity appearing dark or blackish in certain lights; hair on thorax above sericeous whitish to sericeous yellowish or even yellowish; prealar and postalar bristles reddish golden; hair in mesopleural tuft, propleural part and on coxae more whitish; that on sides of tergite I dense and whitish; rest of hair on sides of abdomen also largely sericeous whitish; that across hind margins of tergites 4-7 (or 8) black; that on venter sericeous whitish, black on last sternite and gleaming yellowish on 3-hypopygium; scaling above deep reddish or brownish golden, sparse on frons;

that on sternopleuron and venter white; that on legs predominantly whitish. Wings as figured by Bezzi (loc. cit., pl. ii, fig. 21, and text-fig. 114, left), rather elongate, pedunculate, almost entirely infuscated dark coffee-brownish to dark chocolate-brownish, only the basal three-quarters of axillary lobe, a spot at apex of second basal cell, a largish and conspicuous spot in apical half of discoidal cell, ill-defined spots or areas medially in posterior cells, elongated curved spots in apical parts of first submarginal and second submarginal cells (along border of wing) clear or milky whitish, sometimes also with small evanescent whitish spot-like patches in apical part of marginal cell and medially



Text-fig. 114. Wing-tips of Petrorossia vinula Bezz. (left), and Petrorossia masieneënsis n. sp. (right)

in first submarginal and even first posterior cells; veins very dark brownish to blackish brownish; second main vein suddenly and deeply looped at its end, almost recurved; base of vein between submarginal cells obliquely bent down to third vein, without a stump at bend; middle cross vein in basal half of discoidal cell, nearer middle than in the hesperus-series; alula much reduced, vestigial; axillary lobe narrow, elongate; squamae subopaquely yellowish, white-fringed; halteres yellowish, the base above and basal infusion on knobs above brownish. Head with the interocular space in front of ocellar tubercle in 3 relatively broad, varying from a little less than to a little more than 2 and to sometimes  $2\frac{3}{4}$ , times width of tubercle, a little or scarcely broader, about  $2\frac{1}{9}$ to 3 times width of tubercle in \$\inp\$; from medially distinctly more longitudinally depressed in front of tubercle in 2 than in 3; antennal joint 3 with the basal part broad and discoidal, from there slender, rod-like, ending in a terminal basal joint bearing a fine style and a crown of a few short hairs. Legs with the front coxae a little less than half as long as front femora; longish, fine, pale hairs present on outer and lower surfaces of femora, especially front and middle ones; front and middle femora without spines below; hind ones with about 3-5 spines in a row on lower outer apical part and irregularly disposed spinelets on upper apical aspect. Hypopygium of 3 (text-fig. 115) differs from that of hesperus subsp. tropicalis in having a longer basal process to basal parts, longish bristly hairs also present along outer margin in neck region in apical half of basal parts; beaked

apical joints more scroll-like, the apical part curved outwards, ending apically in an upper and a lower spine-like process, the inner or upper one direct outwards; ventral aedeagal process produced into a blade-like process apically under aedeagus; basal strut more bat-shaped, its apical margin without a lateral ledge-like extension.

In the Commonwealth Institute, British, Transvaal and South African Museums.

Length of body: about  $5\frac{1}{2}$ -11 mm. Length of wing: about 6-12 $\frac{1}{2}$  mm.

Locality: Southern and South-western Cape and the Little Karoo to Namaqualand.

Members of this species frequent the shade among shrubs and small bushes, and their flight is relatively slow for a Bombyliid.



TEXT-FIG. 115. Side view of hypopygium, and apical and dorsal views of beaked apical joint, of § Petrorossia vinula Bezz.

### Petrorossia masieneënsis n. sp.

This species is the eastern subtropical representative of *vinula* and superficially resembles it very much. It differs from *vinula*, however, in having the wings on the whole more uniformly and diffusely coffee-brownish, less dark chocolate-brownish, the less-infused areas in the discoidal and posterior cells distinctly less clear and less defined, more greyish than whitish; the axillary lobe less contrastingly clear in basal three-quarters and less infuscated apically; the anal cell not much darker and not so conspicuously dark as in *vinula*; the apical parts of



TEXT-FIG. 116. Side view of hypopygium and dorsal and apical views of beaked apical joint of *Petrorossia masieneënsis* n. sp.

submarginal cells (text-fig. 114, right) more extensively or entirely clear, there being no broad infusion along vein separating them as in vinula. Some distinct very dark or black bristly hairs are present across hind border of scutellum and across hind margin of tergite 1. Hypopygium of 3 (text-fig. 116) differs from that of vinula in having the beaked apical joints relatively longer, their apical half more slender, their outer rim-like edge less raised or prominent and in having a slightly broader, less bat-shaped basal strut.

From a  $\eth$  and Q in the South African Museum.

Length of body: about 8-91 mm.

Length of wing: about 10-101 mm.

Locality: Portuguese East Africa: Masiene (Lawrence, Dec. 1923).

#### Petrorossia plerophaia n. sp.

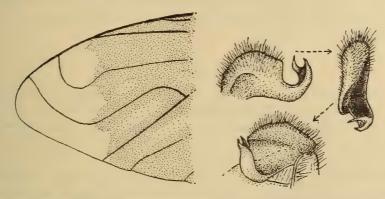
This species also belongs to the *vinula*-group, resembling *vinula* and *masieneënsis* superficially but differing in the following respects:

Body with the reddish yellow or orange reddish on sides of abdominal tergites slightly broader, being sometimes more conspicuous on sides of tergites 2 and 3 or 2-4; legs also predominantly yellowish, the coxae even tending to be more yellowish than in vinula, the upper surfaces or upper apical parts of hind femora usually infused with brownish, sometimes however entirely yellowish, apical parts of tarsi darkened as in vinula. Vestiture on face usually, or even entirely, vellowish sericeous to golden yellowish, fewer black hairs being present, rarely almost entirely dark; that on frons either yellowish basally and with more black hair anteriorly or entirely blackish; that on antennae black above and below; hair on thorax above more straw-coloured whitish; that in mesopleural tuft white; that on scutellum and abdomen predominantly sericeous whitish; bristly hairs across hind margins of tergites 5-7 (or 8) also predominantly blackish or with numerous black ones; hair on venter gleaming sericeous whitish; fine scaling above gleaming more brassy yellowish than deep reddish golden; scaling on legs and venter also whitish as in the other two species. Wings distinctly more uniformly and more homogeneously yellowish brownish than in the preceding two species, appearing less dark, the slightly less-infused medial parts of the cells, if indicated, ill-defined and not contrastingly clear; apex of wings (text-fig. 117, left) from apex of costal cell more or less straight across to apex of first posterior cell entirely and conspicuously clear vitreous hyaline, a character which at once distinguishes it from vinula or masieneënsis; greater part or entire axillary lobe also clear or greyish hyaline and even basal to two-thirds or three-quarters of anal cell clear or clearer in some specimens; second vein also deeply looped at end as in the other two species; alula and axillary lobe reduced to the same extent and the wings thus also appearing pedunculate; halteres predominantly yellowish, their knobs entirely or more extensively yellowish above. Head with the interocular space in front of tubercle in 3 about 2 to a little more than 2 times width of tubercle, about 21 to about 3 times as broad as tubercle in  $\mathcal{Q}$ ; antennae (text-fig. 112, middle) as in vinula and masieneënsis. Legs with a variable number, 2-4, spinelets in a row along lower apical part and about 3-8 irregularly disposed spinelets on upper apical part of hind femora. Hypopygium of 3 is nearest to that of masieneënsis (cf. text-fig. 116), differing only in the shape of the beaked apical joints (text-fig. 117, right) which appear less elongate, with a more prominent, higher and distinctly more raised outer rim and with a more prominent apical spine. From the beaked apical joints of vinula they differ in having a distinctly longer apical part and a more prominently raised outer rim.

From 11 33 and 8 99 (types in the South African Museum, paratypes in the Commonwealth Institute, Deutsches Entomologisches Institut, Durban, Rhodesian and Transvaal Museums).

Length of body: about 5-12½ mm. Length of wing: about 6-14 mm.

Locality: South-West Africa: Great Karas Mts. in Great Namaqualand (Mus. Exp., Nov. 1936) (types). Southern Rhodesia: Hopefountain (Stevenson, 30 Aug. 1922); Sawmills (Rhod. Mus., 11 Nov. 1920; Stevenson, Dec. 1923); Sanyati Valley (Stevenson, Dec. 1925); Victoria Falls (H. E. L., 24 Aug. 1920); Bembesi River (Stevenson, 5 Sept. 1926); Khami (Rhod. Mus., 6 Nov. 1926). Transvaal: Montrose (Lingnau, 11 Jan. 1926); Magalieskraal (Lingnau, 31 Jan. 1926). Zululand: Manguzi River near Maputa (Bell-Marley, Nov.-Dec. 1945).



Text-fig. 117. Wing-tip of *Petrorossia plerophaia* n. sp., and (right) side, dorsal, and apical views of beaked apical joint of hypopygium of 3 of same species.

This species appears to be variable in size, in the coloration of the hair on frons and face, in the presence or absence of a dark infusion on upper surfaces of hind femora, in the extent of the yellowish on sides of abdomen and in the extent of infuscation in anal cell and apex of axillary lobe. The paratype, from Magalieskraal, even has the yellowish on sides of abdomen much reduced. The  $\varphi$ -paratype, from the Victoria Falls, has all the hair on frons entirely or predominantly black. This species seems to occur in grass savannah type of country whereas *vinula* is confined to the semi-arid scrub or Karooid type of environment. On the other hand *masieneënsis* occurs in the subtropical wooded eastern part.

# Petrorossia fulvipes-section

This section includes the species fulvipes (Lw.), fumipennis n. sp., gratiosa Bezz., chapini Curr., angustibasalis n. sp., karooana n. sp. and imbutata n. sp. in which the abdomen is either broadly orange reddish on sides or even predominantly orange reddish; interocular space narrow in both sexes and the frons shining in both sexes; body on the whole less hirsute above, covered with dense, brightly gleaming golden tomentum, especially on sides of thorax; wings often particolored in  $\varphi\varphi$ , or the axillary lobe is markedly reduced (see text-fig. 118,

lower figure); femora without longish fine hairs on outer and lower surfaces, these hairs being short; hind femora in 33 with a distinct row of spines also on inner side below. Apical margin of last sternite in 33 is arcuately rounded or subtruncate. Hypopygium of 33 (text-figs. 119-21) with the beaked apical joints less curved or twisted, appearing more tin-opener-like from side, ending apically in an upper and a lower spine-like process or sometimes even in three processes, with the outer apical part of the joints sometimes excavated (text-fig. 119), sometimes with a subapical spine-like process on inner margin (text-fig. 120); united apical part (or aedeagal process) of lateral rami from basal parts in form of a downwardly directed hammer-head-shaped process which is bifid or bidentate apically; lateral struts longish, broad and well developed; basal strut with a lateral ledge-like extension on each side of apical margin and usually chopper-shaped.

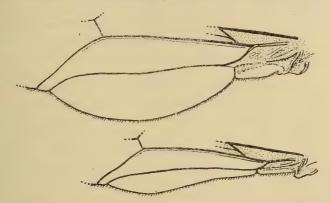
### Petrorossia fulvipes (Lw.)

(Loew, p. 210 and tab. ii, fig. 14, Dipt. Faun. Südafr., i, 1860 (as Anthrax); Bezzi, pp. 120 and 121, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 154, The Bombyliidae of the Ethiopian Region, 1924; Curran, p. 38, Bull. Amer. Mus. Nat. Hist., lvii, 1927-8; Séguy, p. 118, Bull. Mus. Nat. d'Hist. Nat., (2), iii, 1931.)

Loew's original description of this species was based on a 3-specimen. Subsequently in 1924 Bezzi described the ♀ and in 1938 Curran gave still another description of the 2 based on two specimens from Stanleyville in the Congo. The fact that the wings of the PP in this group are either differently infuscated or more intensely infuscated than in the 33 has probably led to some confusion in allocating  $\mathcal{P}$  specifically to their respective 3. Judging from the long list of localities, sometimes very widely separated in Africa, given by Bezzi (loc. cit., 1924) for 33 and 99 of fulvipes, there is a possibility that all these specimens do not belong to this species, especially when the fact be borne in mind that four new species and an additional new variety from Southern Africa, which superficially resemble fulvipes, are described below and that in the species gratiosa, described by Bezzi (p. 155, The Bombyliidae of the Ethiopian Region), it is quite evident from the illustration of the wing (loc. cit., fig. 13) of a supposed Q-gratiosa that the latter obviously belongs to some variety of fulvipes. The characters of fulvipes, as based on a series of both sexes before me, are as follows:

Body with the head and thorax mostly black; rings around antennal insertions and the buccal rims ivory yellowish; humeral part, to a certain extent sides of thorax and the postalar calli dark ferruginous brownish; hind margin of metapleural part, sides of abdomen very broadly, usually broader in  $\mathcal{P}$  than in  $\mathcal{T}$ , and entire or greater part of venter reddish yellowish or orange reddish, only a broad central longitudinal band above black, this band narrower in  $\mathcal{P}$ , rarely very broad, and usually narrower than orange reddish on sides and in both

sexes usually broadest on tergites 1 and 2, tending to be narrowest between tergites 2 and 3 or 2 and 4, sometimes much broadened posteriorly, rarely with the black encroaching on the sides, the hind margin of tergite 1 and those of posterior tergites usually reddish even discally and hind margins of sternites (if venter is not entirely reddish) broadly reddish; hypopygium of 3 also yellowish reddish; front coxae usually black, the middle and hind ones sometimes infused with reddish to a variable extent; femora, tibiae and part of tarsi predominantly yellowish or ochreous yellowish, the extreme upper apical part



Text-fig. 118. Alula, axillary lobe, and anal cell of  $\mathcal{P}$  Petrorossia fulvipes (Lw.) (upper figure) and  $\mathcal{P}$  Petrorossia angustibasalis n. sp. (lower figure).

of hind femora darkened, especially in 3, apical parts of tibiae, the entire hind tarsi and greater part of the others brownish. Vestiture with the hair less developed than in all the preceding species, relatively much shorter; fine hairs on frons and antennae above and below black; that on face gleaming greyish or silvery whitish in certain lights; greyish or silvery pruinescence also present on sides of frons in front and on face; very fine and short hair on occiput dark, becoming yellowish or brownish golden around the margin of cavity and silvery on sides; longer hairs in collar and along sides of thorax above and on upper part of mesopleuron gleaming deep golden to brownish golden; very fine sparse hairs discally dark; prealar and postalar bristles reddish golden; some bristly hairs across base of thorax and across hind margin of scutellum black; hair on rest of mesopleuron, propleurae and coxae silvery whitish; that densely on sides of tergite 1 yellow, deep golden to orange golden; rest of hair on sides of abdomen also gleaming golden, but that on sides and also discally on tergites 2-7 (or 8) black; that on venter gleaming sericeous whitish to yellowish; scaling above very dense on sides and base of thorax and on scutellum and in form of dense deep reddish or orange golden tomentum; that on sternopleuron and in tufts on mesopleuron in form of more hair-like silvery scaling; that on venter sparse and sericeous whitish; that on legs predominantly whitish, but with slight golden gleams on upper surfaces of femora and tibiae in certain lights, with dark hair-like scaling on upper surfaces of hind tibiae. Wings in &

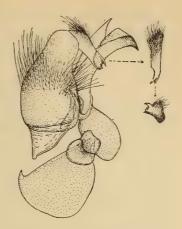
as figured by Loew (loc. cit., tab. ii, fig. 14), predominantly greyish hyaline, the base, alula, costal cell, basal part or upper basal part of first basal cell and to a lesser extent base or basal part of second basal cell and extreme base of anal cell subopaquely infused with yellowish or yellowish brownish; in Q rarely like in 3, usually slightly broader, particoloured to a slightly variable extent, the entire basal two-thirds up to level of apex of false vein in costal cell and more or less straight across just in front of base of second submarginal cell to apex of fourth posterior cell more or less uniformly yellowish brownish to pale coffee-brownish, this infusion sometimes less well marked off and imperceptibly grading into hyaline apical part, sometimes even less extensive, not even reaching apex of discoidal cell and in some specimens occupying only anterior basal part, even leaving hinder part, anal cell, and axillary lobe clear (a single & which Mr. Francois collected in Ruanda-Urundi and which is in the Musee d'Histoire Naturelle de Belgique in Brussels has particoloured wings like a 2); veins reddish yellow or reddish brownish; second vein with the loop at end less deep than in preceding species; base of vein between submarginal cells usually bent down at right angles and more often with a short stump at bend; alula reduced and narrowish and the axillary lobe (text-fig. 118, upper figure) elongate, broadish, broader than anal cell and its base not sharply acute, the base of wings thus not appearing pedunculate; squamae opaquely yellowish whitish, the fringe feeble, in form of very short and sparse pale hairs; halteres yellowish, their knobs almost whitish. Head with the interocular space in front of tubercle in 3 narrow, much narrower than in 33 of all the preceding species, a little broader than ocellar tubercle, the space in 2 about 2, or a little more, times as broad as tubercle; frons more or less shining in both sexes, medially longitudinally depressed in front of tubercle in  $\mathfrak{P}$ ; antennal joint 3 (text-fig. 112, right) broadened bulb-like basally, not broadly discoidal, the slender rodlike apical part ending in a terminal joint bearing a style and no crown of hairs. Legs with the front coxae distinctly longer than half length of front femora; femora with only short fine pale hairs and very short fine, relatively sparse, dark scale-like hairs; hind femora in & with a row of about 11-13 spines from base to apex on inner lower part and about 3-5 on outer lower apical part, without any spines on inner lower aspect in Q, but with about 3-4 on outer lower apical part, with some spinelets on upper apical aspect in both sexes, sometimes with 1 spine on front femora below in some 33. Hypopygium of 3 (text-fig. 119) with longish stoutish bristly hairs across dorsum of basal parts; beaked apical joints scarcely curved, elongate, excavated apically on outer part, the excavation bounded above apically by a spine-like process and below apically by two smaller spines (shown in figures); ventral aedeagal process, formed by lateral rami from basal parts, in form of a downwardly directed hammer-head-shaped process which is bifid apically; lateral struts rather broad and well developed; basal strut more or less chopper-shaped.

In the Transvaal, Natal, Durban and South African Museums and in the South Rhodesian Agricultural Department and Commonwealth Institute.

Length of body: about  $6\frac{1}{2}-10\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}-12$  mm.

Locality: Koup Karoo, southern parts of the Great Karoo, Eastern Cape, Natal, Zululand, Portuguese East Africa and Southern Rhodesia. According to Bezzi and Curran it also occurs in East and West Africa.

As is evident from the above description and from the remarks of Bezzi this species appears to be variable. Certain  $\mathcal{Q}$ -specimens, from the Koup Karoo and southern Great Karoo, differ from the Natal and South East African  $\mathcal{Q}\mathcal{Q}$  in having the infusion in the wings distinctly much less extensive and less dark, practically occupying only the anterior basal part and not extending to anal cell, axillary lobe and hind border. Another  $\mathcal{Q}$ , from Durban, has the infusion even more extensive than in other Natal specimens



TEXT-FIG. 119. Side view of hypopygium, and oblique dorsal and apical views of beaked apical joint, of 3 Petrorossia fulvipes (Lw.).

and extending even to beyond base of vein between submarginal cells; its hair on the face also has more numerous intermixed black hairs. Two  $\varphi\varphi$  from Natal in the Commonwealth Institute have the wings slightly infuscated like 33, and the abdomen above is predominantly dark. Another  $\varphi$  from Umbilo in Natal, collected by Mr. Bell-Marley, has the following note attached to it: 'From mud nest of Synagris analis Sauss. egg smuggled in with spider by  $\varphi$  wasp before sealing up.'

# Petrorossia fumipennis n. sp.

Two specimens ( $\beta$  and  $\varphi$ ) from Zululand in the collections before me, though superficially resembling *fulvipes*, nevertheless show certain characters which appear to be of specific value and which thus exclude the possibility of any varietal extremism. From *fulvipes* they differ in the following respects: *Body* with the longitudinal black band on abdomen above relatively narrower, especially in  $\varphi$ ; coxae tending to be paler, more yellowish. *Vestiture* with the hairs on head in front relatively denser and slightly longer; that on face darker, entirely black or dark in  $\beta$  and more yellowish or brownish in  $\varphi$ ; hair and scaling on pleurae and coxae golden yellowish, scarcely paler golden than those in collar and mesopleural tuft; scaling on body above deeper reddish or orange golden. *Wings* in both sexes equally, entirely and uniformly rather darkly infuscated yellowish brownish or smoky brownish, but with the basal and costal part, first basal cell and to a certain extent second basal cell slightly darker; discoidal cell tending to be slightly more acute apically.

The ♂-holotype in the South African Museum and ♀-allotype in the Durban Museum.

Length of body: about 9-9½ mm. Length of wing: about 10-10½ mm.

Locality: Zululand: Manguzi River near Maputa (Bell-Marley, Nov.-Dec.

1945).

## Petrorossia angustibasalis n. sp.

This species also superficially resembles *fulvipes* but when compared with the latter it may be recognized and distinguished by the following characters:

Body with the reddish or orange reddish on sides of abdomen in the typical form distinctly less broad and less extensive, the central black band above relatively much broader and even in Q usually very much broader than red on sides, the greater discal part of abdomen above sometimes predominantly black; legs similarly coloured but hind femora in at least apical third, especially in 3, distinctly more extensively and more conspicuously darkened. Vestiture on frons, antennae and face even slightly shorter than in fulvipes; that on frons and antennae above black; that on the silvery pruinescent face either entirely silvery whitish or with an admixture of black hairs in some specimens; that on antennae below composed of dark and whitish intermixed hairs; longish hairs in collar above, on sides of thorax, upper part of mesopleuron and on sides of tergite I less yellow than in fulvipes, usually more whitish or straw-coloured whitish, not deep orange yellowish; that on anterior part of pleurae, coxae and venter also sericeous whitish; pale hair on extreme sides of abdomen sometimes slightly more yellowish than that on tergite I; short and very sparse hairs discally on thorax, some bristly hairs at base of thorax and across hind border of scutellum and the rest of the bristly hairs and short discal hairs on tergites 2-7 (or 8) black; prealar and postalar bristles yellowish to golden; scaling above



TEXT-FIG. 120. Side view of hypopygium, and dorsal and oblique apical views of beaked apical joint, of 3 Petrorossia angustibasalis n. sp.

deep reddish golden, disposed as in fulvipes; that on pleurae and legs also white. Wings unlike those of fulvipes in that they are distinctly narrower, almost clear hyaline in 3 and greyish or only feebly tinted greyish yellowish in Q, not deeply brownish and particoloured; base, costal cell and upper part of first basal cell in 3 and in addition the entire first basal cell in ♀ subopaquely yellowish or very pale yellowish brownish; base of vein between submarginal cells not so constantly tending to be bent down at right angles, only occasionally with a short stump at bend; alula more reduced than in fulvipes, vestigial, and axillary lobe (textfig. 118, lower figure) very much narrower, distinctly more reduced than in fulvipes, narrower than anal cell, its base very narrow, the base of wings thus narrow, pedunculate. Head with the interocular space in front of tubercle in 3 relatively

narrower than in *fulvipes*, only about as wide as, or even appearing slightly narrower than, narrow tubercle, in  $\mathcal{Q}$  also narrower, about  $1\frac{1}{2}-1\frac{3}{4}$  times width of tubercle; frons more converging towards ocellar tubercle in both sexes, its central longitudinal depression in  $\mathcal{Q}$  slightly deeper; antennal joint 3 as in *fulvipes*. Legs with about 9–14 spines on inner lower part of hind femora from base to apex in  $\mathcal{J}$ , with about 3–4 spines on outer lower apical aspect and a variable number of spines on upper apical part in both sexes; middle femora in  $\mathcal{J}$  sometimes with 1 or 2 spinelets near middle. Hypopygium of  $\mathcal{J}$  (text-fig. 120) with the basal parts like those of fulvipes; beaked apical joints shaped as shown in figures, ending apically in an upper and a lower spine-like process, but with an additional subapical spine on inner side (see dorsal view); aedeagal process bifid apically when viewed from below; lateral struts long, well developed; basal strut much like that of fulvipes.

From 6 33 and 7 99 (types in the South African Museum, paratypes in the Rhodesian, Transvaal and British Museums and in the Agricultural Department of Southern Rhodesia).

Length of body: about  $5-8\frac{1}{2}$  mm. Length of wing: about  $6\frac{1}{2}-10$  mm.

Locality: Zululand: Mfongosi (Jones, April-May 1931, and Dec. 1916) (types); Mfongosi (Jones, March 1914, April 1916); Hluhluwe (Zumpt, 18 Jan. 1950); Natal: Kloof (Marley, Feb. 1915); Weenen (Thomasset, Sept. 1926). Pondoland: Port St. Johns (Turner, March 1923). Southern Rhodesia: Bulawayo (Rhod. Mus., 4 Dec. 1927); Bulawayo (Stevenson, 1 Dec. 1923, and 19 Dec. 1924); Lomagundi (Collins, 5 March 1940).

As far as wing-characters are concerned this species comes very near the Nigerian species gratiosa Bezz. (p. 616, Trans. Ent. Soc. Lond., 1911), of which the wing is figured (fig. 12, p. 155, The Bombyliidae of the Ethiopian Region, 1924). From Bezzi's original description and subsequent notes it appears to differ from gratiosa in not having yellow hair on pleurae and in having the dorsum of abdomen predominantly black or with a broad black central band. The Q-paratype from Lomagundi has the following note attached to it: 'at nests of "wasps" in mud walls of hut'. Like other species of this genus it also appears to be variable and a Q-specimen from Portuguese East Africa may be referred to a distinct variety as follows:

# Petrorossia angustibasalis var. buziana n.

This  $\varphi$ -specimen differs from typical  $\varphi\varphi$  in being distinctly larger, about 10 mm. long, with a wing-length of about 12 mm.; abdomen predominantly orange reddish, the central black band above narrow, very much narrower than red on sides, the band becomes narrower posteriorly and does not continue on to last tergite; hair on thorax in front, on sides, upper part of mesopleuron, sides of tergite 1 and sides of abdomen very deep golden or orange yellowish as in *fulvipes*, not whitish; wings tinged slightly darker than in typical  $\varphi\varphi$ ; interocular space in front of tubercle about 2 times width of tubercle. From  $\varphi\varphi$  of

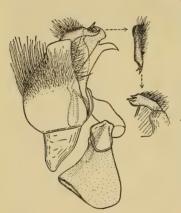
ulvipes it may at once be distinguished by the non-particoloured wings and the very much reduced alula and axillary lobe.

From a  $\centering$  in the Agricultural Department of Southern Rhodesia.

Locality: Portuguese East Africa: Buzi River (Williams, 30 Nov. 1939).

#### Petrorossia karooana n. sp.

This unique &-specimen superficially resembles a & of fulvipes but may at once be distinguished by its narrow interocular space which is only about as broad as ocellar tubercle, the intermixed pale hairs on antennal joints 1 and 2 below, the clear hyaline wings with a vestigial alula and very much reduced axillary lobe and the more extensive black on upper apical third of hind femora. From the & of angustibasalis it differs in having more extensive and distinctly broader orange reddish on sides of abdomen, the central black band being distinctly



Text-fig. 121. Side view of hypopygium, and dorsal and oblique apical views of beaked apical joint, of *& Petrorossia karooana* n. sp.

narrower than red on sides; the hair across front part of thorax, sides of thorax, upper part of mesopleuron and on sides of tergite 1 distinctly more golden yellowish, not whitish. *Hypopygium* (text-fig. 121) resembles that of *angustibasalis* (cf. text-fig. 120) but differs in having the subapical spine on inner side of beaked apical joints situated nearer apex and more dorsally, the apices of joints thus appearing tridentate, with the middle spine directed more horizontally outwards; lateral struts slightly shorter, but also broad; apical margin of basal strut with a more distinct ledge-like extension.

From a 3 in the Transvaal Museum.

Length of body: about 8 mm. Length of wing: about  $8\frac{1}{2}$  mm.

Locality: Karoo: Willowmore (Brauns).

# Petrorossia imbutata n. sp.

A somewhat damaged  $\mathcal{Q}$ -specimen in the collections before me is very near angustibasalis and its variety buziana. The chief characters which distinguish it from these and by means of which it may be recognized are as follows: Abdomen predominantly orange reddish, the black discally above very much reduced, represented only by a central row of oval spots, one on each tergite, the basal one the largest. Vestiture on head as in angustibasalis; that on thorax in front, on sides, upper part of mesopleuron and sides of tergite I gleaming deep golden yellowish as in var. buziana; that on front part of pleurae whitish; prealar, postalar and scutellar bristles all deep reddish golden, there being no dark or black ones on scutellum; scaling above also deep reddish golden and disposed as in angustibasalis and its variety. Wings distinctly darker, uniformly tinged reddish brownish throughout, slightly darker than even in var. buziana;

base of vein between submarginal cells bent down at right angles to third vein and in this specimen provided with a short stump at bend; alula and axillary lobe as reduced as in preceding two species; discoidal cell tending to be distinctly less acute apically. Head with the interocular space in front of tubercle narrow, distinctly a little less than 2 times width of tubercle, thus relatively narrower than in var. buziana. Legs also predominantly yellowish, only the hind tarsi and apical parts of the others darkened; hind femora with about 3 spines on outer lower apical part and with 4 or 5 spines on upper apical part.

From a 2 in the South African Museum.

Length of body: about 7 mm. Length of wing: about  $8\frac{1}{2}$  mm.

Locality: South-West Africa: Kaross in the Kaokoveld (Mus. Exp., Feb. 1925).

## Other species of Petrorossia not seen by me

Five other species of *Petrorossia* have been described or reported south of the Sahara. Owing to the wide range and variability of species of this genus, varieties or races of some of these species may be found to occur along the northern limits of the geographical areas dealt with in this revision. The five species are as follows:

## Petrorossia fuscicosta Bezz.

(Bezzi, p. 153, The Bombyliidae of the Ethiopian Region, 1924.)

Bezzi based his description of this species on two 33 obtained from Abyssinia, and according to his description this species can be easily recognized by the presence of a blackish brown base and stripe on fore-border of wings, extending to end of first main vein and posteriorly to fourth main vein as far as end of first basal cell and including bases of second and anal cells. This species probably belongs to the hesperus-section.

# Petrorossia letho (Wied.)

(Wiedemann, p. 566, Aussereurop. Zweifl. Ins., i, 1828 (as Anthrax); Bezzi, p. 66, Trans. Ent. Soc. Lond., 1911; Bezzi, p. 153, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 412, Die Fliegen d. Pal. Reg., lief. 99, 1936.)

According to the various authors this species appears to be widely distributed in the Near East, Eastern Mediterranean, North Africa, Nubia, Erythraea, Anglo-Egyptian Sudan, Nigeria, Kenya and Nyasaland. From the various descriptions it obviously belongs to the hesperus-series, but does not appear to differ much from some varietal forms of hesperus or hesperus subsp. tropicalis. The only distinguishing characters which are emphasized seems to be the fact that in letho the abdomen has more extensive red, the hair on frons is entirely whitish and the base of vein between submarginal cell lacks an appendix. Some varietal forms of hesperus subsp. tropicalis dealt with in this revision however

also have predominantly whitish hair on frons. Only a careful examination and comparison of numerous specimens of both sexes from a large number of localities of such variable North African and Ethiopian forms as hesperus Rossi, hesperus subsp. tropicalis Bezz., latifrons Bezz., ? albifacies Macq. (Bezz.), letho (Wied.) and media Séguy will elucidate the problem of their specific status over widely separated geographical regions and the validity of their claim to separate specific or varietal identity.

## Petrorossia media Séguy

(Séguy, p. 117, Bull. Mus. Nat. d'Hist. Nat., (2), iii, fig. 4, 1931.)

A species described from Chiramba on the Zambezi River in Portuguese East Africa by Séguy and which, according to the description of the Q, appears to be very near, if not a form of, hesperus subsp. tropicalis. It appears to differ only in having black femora and brownish hind margins to the tergites and much shorter wings in relation to length of body.

## Petrorossia chapini Curr.

(Curran, p. 39, Bull. Amer. Mus. Nat. Hist., lvii, 1927-8.)

This species, described by Curran from a  $\varphi$  collected at Stanleyville in the Congo, obviously belongs to the *fulvipes* and *gratiosa*-section. According to the description it differs from *fulvipes* chiefly in having the abdomen almost entirely orange reddish and in having golden reddish, instead of silvery whitish, pile on pleurae. From the description there is a suspicion that it may prove to be merely a  $\varphi$  or a variety of *gratiosa* Bezz., for this latter species, according to Bezzi, also has golden pile on the pleurae and a predominantly orange reddish abdomen.

# Petrorossia gratiosa Bezz.

(Bezzi, p. 616, Trans. Ent. Soc. Lond., pl. L, fig. 14, 1911; Bezzi, p. 155, The Bombyliidae of the Ethiopian Region, 1924.)

As was stated under *fulvipes*, there is a suspicion that all the  $\mathcal{Q}$ -specimens from Nigeria which Bezzi referred to *gratiosa* may not all be conspecific with his  $\mathcal{C}$ -gratiosa, but judging from his illustration of the wing and his statement that the abdomen has a black discal band, they may prove to belong to some form or variety of *fulvipes*. On the other hand the description of Curran's  $\mathcal{Q}$ -chapini (loc. cit., under *chapini*) suggests a relationship with *gratiosa*. According to Bezzi's notes and illustrations of the wing of the  $\mathcal{E}$ -gratiosa (loc. cit., 1924), the species *gratiosa* comes in the same category as angustibasalis n. sp. described in this revision, but differs in having a predominantly orange reddish abdomen, predominantly black hair on face and golden hair on the pleurae.

# Pteraulax and Pteraulacodes-group

This group is characterized by the presence of three submarginal cells in the wings, the relatively long terminal joint of third antennal joint, the markedly elongate and cylindrical body and abdomen, the comparatively sparse hairs on

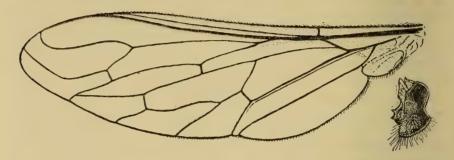
body, the presence of strongly developed bristles on abdomen, and the long, bristle-like spines on hind femora below.

#### Gen. Pteraulax Bezz.

(Bezzi, p. 117 and pl. ii, fig. 20, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 27, The Bombyliidae of the Ethiopian Region, 1924.)

Bezzi's description of this genus was based on a  $\Im$  and a  $\Im$  from Bushmanland. In the large collections before me there are represented not only a series of the genotype-species, but also representatives of at least six other undescribed forms. The chief characters of this genus, as based on all these species, are as follows:

Body tending to be elongate; abdomen more elongate and cylindrical in 33, pointed apically in \$\text{Q}\$; colour predominantly black, appearing greyish due to greyish whitish pruinescence; buccal cavity and palps usually yellowish or pallid; sides of abdomen and hind margins of sternites yellowish or yellowish reddish in most species; legs with the femora either entirely black or yellowish below and at extreme apices to a variable extent, the tibiae and basal parts of tarsi either entirely yellowish or hind tibiae and tarsi blackish. Vestiture with the hair not very dense or shaggy; that on vertex, frons and face fairly dense; that on antennal joints 1 and 2 above and below much like that of Petrorossia, not bushy as in Lomatia; that on disc of thorax short, fine and not very dense; that anteriorly and antero-laterally longer; that on mesopleuron dense and tuft-like, with erect hairs present only on sternopleuron and propleural part; a metanotal tuft wanting; prealar, postalar and scutellar bristles very well developed and long; hair on abdomen very dense only on sides of tergite 1, rather sparse on rest of tergites, longer on abdomen in 33; transverse bristly hairs or bristles across hind margins of tergites and sternites on the whole strongly developed, sometimes in form of conspicuous, stoutish and stiffish, spine-like bristles, especially in 99; terminal genital tuft in 99 dense, gleaming sericeous yellowish or fulvous yellowish to golden; hairs on venter sparse; scaling mostly in form of lanceolate scales; that on thorax above finer, dense on mesopleuron, sternopleuron and coxae; rest of pleurae bare or with greyish pruinescence; scaling on abdomen fairly dense, with fairly conspicuous, cretaceous whitish, lanceolate ones on sides and in transverse bands across hind margins of tergites or as discal patches; rest of scaling on abdomen above either dull ochreous yellowish, ochreous brownish, dark or even black, the paler ones often arranged in longitudinal bands; scaling on venter and on legs dense and usually whitish. Wings (text-fig. 122) narrowish, vitreous or feebly greyish hyaline in known species, only the base, alula and costal cell feebly subopaquely whitish or very pale yellowish whitish; membrane strongly wrinkled or folded; basal comb almost absent; three submarginal cells present; first posterior cell characteristically closed and acute apically, provided with a short stalk; middle cross vein either a little before or a little beyond middle of discoidal cell; anal cell subparallel-sided for greater part of its length, narrowed apically; axillary lobe fairly well developed, only slightly reduced in some forms; alula not markedly reduced, sometimes even rounded and broadish; squamae (text-fig. 122, below, in natural proportion to wing) characteristic, very well developed, fairly large, broad and auriform, usually opaquely yellowish whitish, sometimes with hairs or hair-like scales on surface as well as along hind margin. *Head* large, spherical, usually broader than thorax; eyes very well developed, large, angularly indented behind and with a distinct, short bisecting line extending forwards from indentation, in contact above for some distance in front ocellar tubercle in  $\Im$ , separated in  $\Im$  by a space on vertex about 2 to 3 times distance



Text-fig. 122. Left wing of *Pteraulax flexicornis* Bezz., and (below) left squama of the same species.

between outer margins of posterior ocelli; upper facets in 33 coarser than lower ones; occiput with the central sulcus behind ocellar tubercle slit-like or gap-like, the two lobes not in contact; ocelli on raised tubercle, the front one farther forwards than space between posterior ones; from in 33 slightly convex or tumid, only so anteriorly in PP, distinctly more or less transversely depressed in front of tubercle in QQ and more or less shining in basal half; antennae (text-fig. 123) separated at base, joint 1 broadened apically, much broader than smallish, transverse, subglobular joint 2 which is situated socket-like in its apical excavation, joint 3 broadened bulb-like, leek-like or club-like basally, ending apically in a longish terminal joint bearing a longish style; face short, roundly convex, sloping gradually into buccal cavity; genae narrow and genal furrows deep and distinct; proboscis usually short and stumpy, rarely slender, its labellar lobes broadish, ovate, well developed, usually provided with hair-like spinules; palps either shortish or more usually long and slender, longer than antennal joint 3, biarticulate, the apical joint broadened apically, shorter or much shorter than basal joint. Scutellum rather well developed, subtumid and shining posteriorly in 33 especially. Legs with the femora in some 33 (especially front ones) sometimes thicker and stouter than in 99; front and middle femora, especially in some 33, either with longish, fine, fairly dense hairs below or with only shortish ones, or sometimes even without distinct hairs below; middle femora without or more often with 2 or 3 strong spines on inner lower part; hind femora with a variable number of conspicuous, longish, bristle-like spines (text-

fig. 124) from near base or from about middle to apex below, those in 33 usually more numerous and more strongly developed, the basal ones in some species being conspicuously long, bristle-like and usually more or less arranged irregularly in two rows or in pairs; tibiae with three rows of spicules on front and middle ones, the inner row wanting and those in outer lower row markedly long and bristle-like; hind tibiae with four rows of spicules of which those in outer row are usually the longest and bristle-like and those in inner upper row also with numerous short spicules; apical spurs strongly developed, the lower 2 or 3 markedly long and bristle-like; front tarsi in 33 usually longer than in 99, the basal joint in both sexes with much finer and denser spicules or hair-like spicules than on middle and hind tarsi, the spicules on tarsal joints 2-5 below sometimes in brush-like clumps in some 33; claws slightly curved downwards apically, their pulvilli well developed, almost reaching bent-down apices of claws. Abdomen in QQ with a conspicuous terminal, silky, ovipositorial tuft or brush. Hypopygium of known 33 (text-figs. 125-8) with the sternite opposite it well developed, broad, its apical angles more or less rectangular, sometimes rounded, and its hind margin not incised, sometimes broadly emarginate; basal parts of hypopygium with a small triangular tergite dorsally between their bases, dorsal part in neck region almost without or with only very fine and short hairs, the dorsal apical part sometimes with a lobe-like process, the outer lower edge or margin of each basal part sometimes produced into a lobe-like or even triangular process; beaked apical joints laterally compressed, either elongate, almost blade-like, or bird-head-shaped from side, covered with shortish hairs, the apex usually curved downwards; a distinct, conspicuous, ventral aedeagal process or apparatus present and formed by the lateral ramus on each side from each basal part coalescing apically to form a projecting rod-like or beak-like process on which there is a transverse slit-like groove or incision through which or in which the apex of aedeagus opens (more evident in text-figs. 125 and 126); basal part of ramus on each side where it joins each basal part produced into a process or broad leaf-like extension; lateral struts comparatively broad, shoehorn-shaped or scapula-like; basal strut sometimes with a flattened triangular extension on each side basally and sometimes with a lateral ledge-like extension on each side of dorsal part of the apical margin (cf. text-figs.).

From *Petrorossia* and *Aphoebantus* this genus may at once be distinguished by the presence of three submarginal cells in the wings, the strongly wrinkled wingmembrane, the rather large auriform squamae, the eyes in 33 which are in contact for some distance in front of tubercle, the presence of more lanceolate scaling on body above, the conspicuous, longish and bristle-like spines and their disposition on hind femora in 33, the long spicules on tibiae and their long spurs in both sexes and the different type of hypopygium. All these characters, excepting an apically acute and closed first posterior cell, also distinguish it from the subgenus *Cononedys* of *Aphoebantus*.

Representatives of this genus have not been recorded from outside the boundaries of Southern Africa. Like the species of the *Plesiocera*-group and

members of the *hesperus*-section of *Petrorossia*, representatives of this genus are usually found settling on warm sand in the dry and semi-arid parts where most of the South African forms occur. The genotype species is *Pteraulax flexicornis* Bezz.

#### Key to the known species of Pteraulax

- 1. (a) Spines and spicules on legs distinctly longer, more strongly developed and more conspicuous, the spines on hind femora very long, more bristle-like, especially in 33; transverse rows of bristles across hind margins of tergites and sternites more strongly developed, stouter and longer, sometimes very conspicuous in \$\pa\$; scaling on abdomen above composed of dull ochreous yellowish or brownish ones and less conspicuous transverse bands of snow-white or cretaceous white ones; first posterior cell in wings usually distinctly longer or very much longer than discoidal cell; knobs of halteres brownish or dark above; slightly smaller forms, about 5-9½ mm. long, with a winglength of about 4-8 mm.
  - (b) Spines and spicules on legs less developed, relatively shorter, the spines on hind femora shorter, less bristle-like, more normal even in ♂♂; bristles on abdomen above and on venter distinctly less developed, finer, much shorter, more like bristly hairs than bristles, not very conspicuous in both sexes; scaling on abdomen above composed of dark or black ones and more conspicuous or broader, more contrasting bands of cretaceous white ones; first posterior cell subequal in length to, or scarcely longer, or even shorter than discoidal cell; knobs of halteres usually paler brownish or more yellowish above; slightly larger forms, about 9-11 mm. long, with a wing-length of about 8-9 mm.
- 2. (a) Palps shorter, subequal in length to antennal joint 3, the apical joint much shorter, only about or even less than half length of basal one; antennal joint 3 (text-fig. 123, left) with a distinctly longer slender part, its base distinctly more rapidly broadened, more onionor bulb-shaped; front and middle femora with numerous, dense and distinctly longer hairs below, especially in δ; spicules on front tarsi below fine or hair-like on all joints; bristly elements across hind margins of tergites and sternites, even in φ, more feebly developed, relatively shorter, not very much stronger or stouter or more differentiated than rest of hairs on abdomen; frons in φ slightly more longitudinally impressed in front of ocellar tubercle.
- 3. (a) Anterior part of frons and the face distinctly narrower, considerably narrower across antennae than length of eyes from indentation to fore-border, less tumid in appearance; antennae closer together, space between them usually less than length of joint 1; proboscis distinctly longer, more slender, projecting slightly beyond buccal cavity, shiny and horny, with much shorter labellar lobes; enclosed submarginal cell in wings shorter, broader, more broadened apically; anterior apical submarginal cell distinctly shorter, its basal angle, even in  $\mathcal{Q}$ , distinctly less acute; alula much narrower and axillary lobe also narrower; bristly elements on abdomen very strongly developed, much longer and stouter; tuft on each side at base of abdomen white; scaling on abdomen above broadly white on sides, dull ochreous yellowish to brownish yellowish discally above, but usually also with a sublateral broken band of dark scales especially in  $\mathcal{G}$  and a paler, more whitish or yellowish central line, especially in  $\mathcal{G}$ ; front femora in  $\mathcal{G}$  thicker than in  $\mathcal{Q}$ , with markedly fine and dense, brush-like hairs below in  $\mathcal{G}$ ; hind

femora in 3 with longer bristle-like spines basally in irregular pairs; basal joint of front tarsi with only very fine, dense, hair-like spicules or hairs below and, especially in 3, with brush-like clumps of dark spicules on joints 2-5 below.

. . . ♂♀ setaria n. sp. (p. 340)

- (b) Anterior part of frons and the face very much broader, only a little or scarcely narrower across antennae than length of eye at level of indentation, distinctly more tumid or convex; antennae farther apart, space between them distinctly more than length of joint 1; proboscis shorter, stumpy, not projecting beyond face, with longer labellar lobes, scarcely shorter than base; enclosed submarginal cell longer, distinctly narrower, more parallel-sided; anterior apical submarginal cell distinctly longer, distinctly more sharply acute basally even in known 33; alula distinctly broader and axillary lobe also relatively broader; bristles on abdomen less developed, shorter; tuft at base of abdomen tinted more yellowish or creamy; scaling on abdomen above also yellowish ochreous or even deeper ochreous yellowish, but with the white and dark ones not so arranged; front femora in known 33 more slender, not thicker than in 99, the fine hairs below not so brush-like; hind femora in known 33 with the spines near base more normal, not markedly long and so irregularly paired; basal joint of front tarsi with dense, but distinct spicules below and with dark spicules on rest of joints not so brush-like in 33.
- 4. (a) Interocular space on vertex in QQ narrower, usually less or much less than or scarcely 3 times width of ocellar tubercle; from in QQ relatively narrower and, just behind antennae, usually distinctly less than length of eye at level of indentation; abdomen above without any or with less extensive black scaling and with finer, paler yellowish or more extensive white scales, the latter arranged across hind margins of tergites or across basal parts of most of the tergites; disc of thorax with fewer black hairs or with not entirely black hairs.
- 5. (a) Space on vertex in ♀ slightly broader, more than half width of frons anteriorly; abdomen in both sexes more broadly and more conspicuously reddish on sides below; hind margins of sternites broader reddish; scaling on abdomen above more uniformly dull ochreous yellowish, white ones being more or less only present broadly across base of tergite 2 and sides basally of the others; bristles across hind margins of tergites discally or medially sometimes dark. (♂ also with black or dark hairs on frons as in ♀; the eyes in actual contact above for about twice length of ocellar tubercle and facets in upper part rather coarse.)
  - (b) Space on vertex in ♀ relatively much narrower, a little less than half width of frons anteriorly, the sides of frons more divergent anteriorly; abdomen more narrowly reddish along extreme sides below; hind margins of sternites more narrowly reddish; scaling on abdomen above on the whole with more extensive whitish ones, more white ones across hind margins of tergites; bristly hairs across hind margins of tergites with apparently more pale ones. ♀ ausana n. sp. (p. 344)
- 6. (a) Hind tibiae distinctly slightly thicker, dark or black and black-scaled and the other tibiae often with dark surfaces; extreme sides of abdomen and hind margins of sternites more narrowly pallid or reddish; antennae closer together, the space between them less than or about length of joint 1 which itself is slightly longer; abdomen with the transverse bristly hairs more developed and longer and the transverse bands of white scaling on the whole narrower and, if broadish, usually without discal white patches; prealar, postalar and scutellar bristles darker, more reddish or reddish golden; hairs on disc of thorax usually very dark or black; veins in wings dark, blackish brown to black; knobs of halteres more often darkened above or brownish.

(b) Hind tibiae thinner, entirely pale or yellowish and pale or whitish-scaled and all the other tibiae entirely yellowish; extreme sides of abdomen and hind margins of sternites distinctly more broadly yellowish, reddish or pallid; antennae more separated, the space between them a little broader than length of joint 1 which itself is relatively shorter; abdomen with the transverse bands of white scaling more constantly broader and usually also with white discal patches in ♀ at least and with the transverse bristly hairs, especially posteriorly, shorter and less developed; prealar, postalar and scutellar bristles paler yellowish or pallid; hairs on disc of thorax tinted reddish brownish in ♀ at least; veins in wings pale or yellowish; knobs of halteres yellowish or pallid.

. . . ♂♀ cinctalis n. sp. (p. 348)

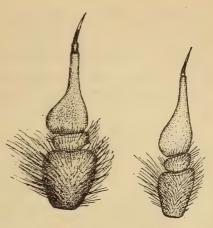
#### Pteraulax flexicornis Bezz.

(Bezzi, p. 118 and pl. ii, fig. 20, Ann. S. Afr. Mus., xviii, 1921.)

The characters of this species, on which Bezzi based his generic description, are as follows:

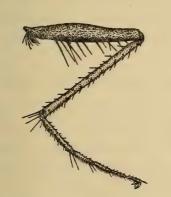
Body predominantly black, the black parts, especially sides of head and thorax, however, appearing dull greyish due to fine greyish pruinescence; dorsal part of thorax usually with three longitudinal lines of more conspicuous grevish white pruinescence; buccal cavity and palps yellowish; extreme sides of tergites below, hind margins of sternites, extreme apices of femora, entire tibiae and greater part or entire tarsi vellowish or vellowish reddish; labellar part of proboscis and trochanters sometimes infused with brownish or reddish brownish. Vestiture on frons, antennae above and below and on face in 3 gleaming entirely or predominantly sericeous whitish, usually with no dark hairs or only a few present on frons; that on frons in 2 predominantly dark brownish to blackish brown and that on antennae above sometimes feebly tinted pale vellowish brownish; that on face in  $\mathcal{Q}$  like that of  $\mathcal{E}$ ; that on pleurae, coxae, mesopleuron and to a large extent on humeral part gleaming predominantly sericeous whitish in both sexes; that across front part of thorax in some 33 also whitish; that discally on thorax in 3 tinted slightly yellowish to brownish, appearing darker, usually darker brownish or reddish brownish in Q; that across collar-region in Q also darker than in Z; prealar, postalar and scutellar bristles well developed, yellowish to reddish yellowish or even reddish brownish to a variable extent; some bristly hairs across base of thorax and hind border of scutellum even darker or blackish in some specimens, especially QQ; dense hair on sides of tergite 1 sericeous whitish; that on rest of abdomen predominantly sericeous whitish in 3, but tinted slightly more yellowish in Q; the more bristly elements across hind margins not conspicuously stoutish, usually predominantly whitish in 3, more yellowish in some 33, usually sericeous yellowish to dark brownish in ♀; those across last or last two tergites and last sternite usually dark in most 33; hairs on femora sericeous whitish; scaling on sides of head, thorax and scutellum predominantly cretaceous whitish, denser on sides of thorax and along three discal lines; that on abdomen predominantly ochreous yellowish or reddish brownish; that on sides and as narrow bands across hind margins of tergites cretaceous whitish; that on venter also cretaceous whitish; that on legs dense, predominantly cretaceous whitish, sometimes slightly tinted yellowish on

upper apical parts of femora. Wings (text-fig. 122) with the veins dark brownish to blackish brown, usually becoming more brownish at base; first posterior cell distinctly very much longer than discoidal cell; middle cross vein distinctly or much before middle of discoidal cell; squamae (text-fig. 122, below) with fairly dense scale-like hairs or scales on surface; halteres brownish, their knobs brownish above. Head with the space between eyes across level of antennae very much narrower than length of eye from indentation to anterior margin; interocular space on vertex in 2 varying from about 2, to a little more, times distance between outer



TEXT-FIG. 123. Left antenna of 3 Pteraulax flexicornis Bezz., and (on right) left antenna of 3 Pteraulax setaria n. sp.

margins of posterior ocelli; frons distinctly longitudinally depressed in front of tubercle in Q; antennal joint 3 (text-fig. 123, left) broadened bulb-like or onion-like at base, slightly more so below; proboscis short, stumpy, confined to buccal cavity, its labella well developed, usually a little longer than basal part of proboscis and with conspicuous spinules; palps subequal in length to antennal joint 3, the basal joint about or nearly 2 times as long as apical joint. Legs with distinct long, fine and relatively dense hairs on front and middle femora below, especially in  $\mathcal{J}$ ; front femora in  $\mathcal{J}$  not more developed than in  $\mathcal{Q}$ ; middle femora



TEXT-FIG. 124. Left hind leg of & Pteraulax flexicornis Bezz.

usually without any spines below, but sometimes with a few spines in some  $\mathfrak{P}$ ; hind femora (text-fig. 124) with about 10–12 spines from base to apex below in  $\mathfrak{F}$  of which the basal 5 or 6 are markedly long and irregularly disposed, with about 6 or 7 shorter spines in  $\mathfrak{P}$ ; front tarsi with spicules below fine, short and hair-like on all the joints. *Hypopygium* of  $\mathfrak{F}$  (text-fig. 125) with the beaked apical joints rather elongate, narrowish, much flattened from side to side, blade-like; apical part of ventral aedeagal process rod-like, its apex curved downwards; apex of aedeagus ending in a slit in ventral process; lateral struts

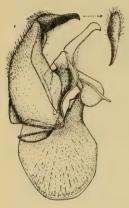
broad, shoe-horn-shaped; basal strut large, sub-racket-shaped, with a triangular lateral extension on each side basally and with no apparent extension on each side of apical margin.

Types and other specimens in the South African Museum.

Length of body: about  $6-9\frac{1}{2}$  mm. Length of wing: about  $5\frac{1}{2}-8$  mm.

Locality: Bushmanland and Namaqualand.

Like *Petrorossia hesperus* subsp. *tropicalis*, representatives of this species are usually also found settling on the warm sand between shrubs. It appears to occur only in the dry and semi-arid parts of the North-western Cape.



Text-fig. 125. Side view of hypopygium and dorsal view of beaked apical joint of *Pteraulax flexicomis* Bezz.

#### Pteraulax setaria n. sp.

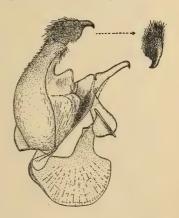
This species, which appears to be fairly common in the Western Cape in the Olifants River Valley and Namaqualand is characterized as follows:

Body mainly black; antennal joints 3 and proboscis often tending to be more castaneous brownish; small ring around place of attachment of antennae, posterior half of buccal cavity and its posterior rim and the palps very pale yellowish or pallid; anterior spiracular openings, hind margin of metapleural part, extreme sides of tergites (more broadly in 3), hind margins of sternites and to a variable extent last sternite in 3 yellowish or reddish to a variable extent; coxae or their apices to a variable extent, trochanters, sometimes bases of femora, sometimes lower surfaces of or even greater part of front and middle femora, or only the middle femora, the knees, tibiae and basal parts of tarsi also yellowish.

Vestiture with the greater part of head in front, thorax above and pleurae covered with a greyish whitish pruinescence which on disc of thorax is more conspicuous as two bluish whitish sublateral streaks and a fainter, more whitish, central one; hairs on frons black or dark in ♀, sericeous whitish in ♂, but occasionally with a few or some dark ones in the middle; those on sides anteriorly of frons in Q and on face in both sexes gleaming sericeous whitish to pale sericeous yellowish in some QQ especially; hairs on occiput dark in Q, pale or whitish in 3, scaling on frons dull ochreous yellowish in 2, more greyish yellowish to whitish in 3; scaling on sides of frons anteriorly in 2, sparsely on face in both sexes and rest of scaling behind eyes and on head below in both sexes white; hairs in collar anteriorly, on humeral tubercle, mesopleural and propleural tufts, bristly ones on coxae, tuft on sides at base of abdomen, hairs and bristles on sides of abdomen above, especially in 3, and bristly hairs on venter in both sexes sericeous whitish, those on venter sometimes gleaming slightly more sericeous yellowish; fine hairs on disc of thorax, the bristly ones across base of thorax, the bristly ones in front of prealar bristles in Q, hairs on hinder part of collar in ♀, bristly hairs on hinder part of scutellum in ♀ (wanting in 3), transverse rows of strongly developed, conspicuous and stoutish bristles across hind margins of tergites on each side of middle in ♀ (longest and stoutest

on tergites 2-4 towards middle), a few in a row on each side of middle in & and some across last tergite in 3 and often posteriorly on venter in 3 dark or black; most of the corresponding, long, transversely arranged bristles on abdomen above in & being, however, whitish or pallid; prealar, postalar and scutellar bristles yellowish, reddish or reddish golden in both sexes; fine scaling on thorax above greyish yellowish to ochreous yellowish in 3 with that on sides and in streaks on pale streaks whitish, more extensively ochreous yellowish to brownish in 9; that on scutellum white in 3, more greyish yellowish to dull ochreous in Q; scaling on pleurae and coxae cretaceous white, very dense and conspicuous on sternopleuron and in a small patch above hind coxae; scaling on abdomen above composed of yellowish or dull ochreous to brownish ochreous ones, white or whitish ones and dark or black ones, the dense white ones arranged broadly on sides of abdomen, to a variable extent along midline where it is sometimes replaced by pale yellowish or pale buff-coloured ones and to a lesser extent across hind margins of tergites, the dark or blackish ones usually in a sublateral streak on each side, separating the lateral from the central pale bands in  $\delta$  especially, but absent or ill-defined in  $\mathcal{Q}$  where ochreous or brownish ones seem to be more extensive; scaling on venter dense, cretaceous white; that on legs also dense and mainly cretaceous white, that on anterior apical parts of front and middle femora and in a conspicuous patch on upper apical and upper lateral parts of hind femora dark brownish, blackish brown to black; spines and spicules on legs very pale yellowish, pallid to almost whitish; terminal tuft of Q fulvous yellowish, dark above. Wings vitreous hyaline, iridescent, the base, costal cell and at least basal half of first basal cell more opaquely whitish; veins dark; enclosed submarginal cell distinctly shorter and slightly more broadened in 3 than in 2; anterior apical submarginal cell also slightly shorter and broader and much less acute basally in 3 than in 9; first posterior cell longer than

discoidal cell; middle cross vein a little before to a little beyond middle of discoidal cell; axillary lobe rather narrowish; alula narrow; squamae whitish, with fine whitish hairs; apical part and knobs of halteres dark brown above. Head with the eyes in 3 in contact above in front of ocellar tubercle for a distance about twice length of tubercle; interocular space on vertex in Q a little more than 2 times distance between outer margins of posterior ocelli; from in 2 transversely depressed a little before ocellar tubercle; antennae (text-fig. 123, right) with joint 2 transverse, broader than long, joint 3 broadened club-like to bulb-like basally, more rapidly below, flattened on inner side basally, its slender part slightly longer in 3 than in Q, its terminal joint a little longer than antennal joint 2; proboscis shiny, horny, projecting a little



Text-fig. 126. Side view of hypopygium and oblique dorsal view of beaked apical joint of 3 Pteraulax setaria n. sp.

beyond apex of buccal cavity, its labellar lobes distinctly shorter or much shorter than basal part; palps distinctly longer than antennal joint 3, the apical joint slender, more than half as long as basal joint. Scutellum in 3 distinctly more subtumid than in Q and also more smooth and shining in hinder half. Legs with the femora in 3, especially front ones, markedly stouter than in  $\mathfrak{P}$ ; front ones in  $\mathfrak{F}$  with a streak of fine, dense, brush-like hairs along the lower surface, without any such specialized hairs in Q and also without any on middle femora in 3; middle femora with 1 or 2 spines, more often only 1, on anterior or outer apical half; hind ones in 3 with about 7-15 spines in a double row below of which those basally are remarkably long and bristle-like; hind ones in ♀ with fewer spines, only about 3-5 in a single row; long spinules in outer row on front and middle tibiae conspicuous and remarkably long in both sexes; front tarsi longer in 3 than in 2, joint 1 in both sexes without stoutish spinules below, but with only fine, dense, hair-like ones, joints 2-5 below with the spinules dense and concentrated in brush-like clumps in 3, less so and more normal in Q. Hypopygium of  $\mathcal{E}$  (text-fig. 126) differs from that of flexicornis in having the outer ventral edge of each basal part produced more lobe-like; beaked apical joints entirely different in shape, bird-head-shaped in profile; apical part of aedeagus sometimes distinctly projecting through transverse slit in ventral aedeagal process; basal strut more chopper-shaped.

From 84 33 and 81 99 (types and paratypes in the South African Museum and paratypes in the British and Transvaal Museums).

Length of body: about  $5-8\frac{1}{2}$  mm.

Length of wing: about 4-7 mm.

Locality: Western Cape: Bulhoek in the Olifants River Valley between Clanwilliam and Klawer (Mus. Exp., Oct. 1950) (types); upper sources of Olifants River in Ceres Division (Mus. Exp., Dec. 1949); Citrusdal Dist. (Mus. Exp., Nov. 1948); Olifants River between Citrusdal and Clanwilliam (Mus. Exp., Oct.–Nov., 1931); Matroosberg (3,500 ft. alt.) in Ceres Div. (Lightfoot, Jan. 1917); Michell's Pass (Simmonds, 1–5 Dec. 1930); Kamieskroon in Namaqualand (Mus. Exp., Nov. 1936). South-West Africa: Klipfontein in Great Namaqualand (van Son, 16 Nov. 1933).

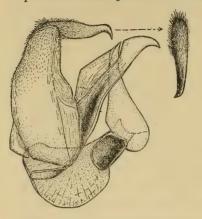
Easily recognized by the stoutish and conspicuous bristles across hind margins of the tergites and to a certain extent also the sternites, especially in  $\Im$ , by the slender proboscis, extensive ochreous scaling on abdomen above, the strongly developed spines and spicules on legs, etc. From *flexicornis* which it superficially resembles it may however at once be distinguished by the longer palps which are longer than antennal joint 3 and which have a longer apical joint; by the longer and not stumpy proboscis; the much shorter and finer hairs on front femora below; stouter front femora in  $\Im$ ; absence of longish hairs on middle femora below; presence of clumps of brush-like spicules on joints 2–5 of front tarsi below; less onion-shaped base of antennal joint 3; shorter and more feebly developed bristles on abdomen, etc.

The species appears to be slightly variable in the extent to which the yellowish on front and middle femora is developed, the extent to which the ochreous scaling on abdomen is replaced along the middle by paler ochreous yellowish or whitish ones and sublaterally in 33 at least by dark scaling. Specimens from higher altitudes near the source of the Olifants River or in the mountains near Ceres appear darker and have the front and middle femora almost or entirely dark. Farther northwards along the Olifants River, in its valley and towards Namaqualand the reddish on the front and middle femora becomes more extensive and the pale central line on abdomen above even paler or more whitish.

## Pteraulax latifacies n. sp.

Body with the abdomen in 3 more conical and less cylindrical than in the two preceding species, predominantly black; buccal cavity and palps yellowish; sides of abdomen above and hind margins of sternites fairly broadly reddish yellowish; legs with the trochanters, extreme bases and apical parts of femora, the tibiae and basal parts of tarsi yellowish reddish, the upper surfaces of hind tibiae and apical parts of tarsi darkened. Vestiture on frons and antennae above predominantly black in both sexes, that on antennae below and face sericeous whitish; that on pleurae, coxae and mesopleuron sericeous whitish; that on thorax above anteriorly and antero-laterally straw-coloured or tinted slightly yellowish in certain lights; short hair discally slightly darker, more brownish, even blackish in some 99; prealar, postalar and scutellar bristles yellowish to reddish, some dark or even blackish bristly hairs present across base of thorax and hind border of scutellum; hair on sides of tergite I sericeous whitish to slightly yellowish in certain lights, sometimes with some intermixed dark hairs across hind margin in some QQ; hair on rest of abdomen predominantly whitish, especially in 3, the stouter bristly elements across hind margins tinted slightly sericeous yellowish in 3, usually darker in 2 and sometimes even blackish, these bristles shorter than in setaria; scaling on sides of frons anteriorly, on face and sides of head cretaceous whitish; that on rest of frons in 2 at least more ochreous yellowish; that on thorax antero-laterally and on scutellum dull ochreous yellowish to brownish; that on abdomen above discally predominantly ochreous yellowish, that transversely across hind margin of tergite 1 and base of 2 and on sides of abdomen cretaceous whitish like that on pleurae and venter; that on the latter two contrastingly more whitish; that on legs also whitish. Wings with the veins dark brownish to blackish brown; enclosed submarginal cell narrow throughout; first posterior cell longer than discoidal cell; middle cross vein either just before or just beyond middle of the latter cell; halteres yellowish brownish, their knobs brownish above or with a brownish spot. Head with the space between eyes at level of antennae markedly broad, about as broad as, or only slightly less than, length of eye at level of indentation; space on vertex in Q a little more than 2, nearly 3, times distance between outer margins of posterior ocelli; frons transversely depressed in front of tubercle in 9; antennal joint 3

club-shaped; proboscis stoutish, stumpy, almost confined to buccal cavity, its labella well developed, scarcely or only a little shorter than basal part; palps slender, a little longer than antennal joint 3, the apical joint long. Legs with the femora in 3 not thicker than in 9, with only fine shortish hairs on front femora below in 3; middle femora with 1 or 2 spines below; hind ones with about 5-7 spines in 3, and 4 or 5 in 9, below, the basal ones in 3 not clustered together; spicules on basal joint of front tarsi below, though dense and fine, not hair-like



Text-fig. 127. Side view of hypopy-gium and oblique dorsal view of beaked apical joint of 3 Pteraulax latifacies n. sp.

and the darkish ones on joints 2–5 not brush-like in clumps. Hypopygium of & (text-fig. 127) superficially resembles that of flexicornis (cf. text-fig. 125), but the beaked apical joints are relatively longer, their apical parts more rapidly curved downwards; ventral aedeagal process more beak-like apically; apex of aedeagus more visible in slit of ventral process; lateral struts more flattened; basal strut with a triangular extension on each side basally.

From 1 3 and 6 QQ (types in the South African Museum, a paratype one each in the British Museum and National Museum of Southern Rhodesia).

Length of body: about 6-9 mm. Length of wing: about 6-8 mm.

Locality: South-western Cape: Hex River (Dec. 1884) (holotype); Genadendal (Mus. Exp., Jan. 1937) (allotype); Malmesbury (Nat. Mus. S. Rhodesia, 27 Jan. 1947); Ceres (Turner, Jan. 1921). Karoo: Murraysburg (Mus. Exp., Nov. 1936). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

Differs from *setaria* in having a distinctly broader facial part across antennae, a more stumpy proboscis, shorter and less conspicuous bristles across tergites, more uniform ochreous yellowish scaling on abdomen above and slightly coarser hairs or fine spicules on basal joint of front tarsi. From *flexicornis* it differs in having a broader facial part, more club-like antennae, longer palps, no long hairs on front femora, etc.

# Pteraulax ausana n. sp.

Superficially resembles \$\pi\$\$ of the preceding species. From flexicornis it differs in being considerably smaller, in having less bulb-shaped third antennal joints, more slender and slightly longer palps, very much narrower yellowish on sides of abdomen, narrower enclosed submarginal cell, shorter hairs on front and middle femora below, and only about 3 spines on hind femora below. From setaria it may at once be distinguished by the relatively stouter and more stumpy proboscis, relatively narrower interocular space on vertex which is only about 2 times width of ocellar tubercle, by the presence of more white scaling trans-

versely across hind margins of tergites, absence of longish and stoutish transverse bristles on abdomen, much narrower yellowish on sides of abdomen, etc. From *latifacies* it differs in having a much narrower interocular space, narrower facial part, more whitish scaling transversely on abdomen above, etc.

From a Q in the British Museum. Length of body: about  $5\frac{1}{2}$  mm. Length of wing: about 5 mm.

Locality: South-West Africa: Aus in Great Namaqualand (Turner, Dec. 1929).

## Pteraulax eurymetopa n. sp.

Denuded Q-specimens are the only representatives of this species in the collections before me. Their chief characters are:

Body predominantly black; buccal cavity, palps, hind margin of metapleural plate, broadish sides of abdomen, broadish hind margins of sternites, trochanters, apices of femora, especially front and middle ones, tibiae, and basal parts of tarsi vellowish reddish; hind tibiae darkened above and the hind tarsi entirely dark. Vestiture on vertex, from and antennae above black; that on face sericeous whitish; that on pleurae, coxae and mesopleuron sericeous whitish; fine hair discally on thorax dark and longer ones antero-laterally tinted yellowish to reddish brownish; longest prealar, postalar and scutellar bristles reddish; some prealar bristly elements, some bristles across base of thorax and across scutellum dark; hair on sides of tergite I whitish; that on rest of abdomen also whitish, the shortish transverse bristles sericeous yellowish, but with black ones across hind margin of tergite 1 and discally on tergites 3-7; hair on venter sericeous whitish; scaling above dull yellowish to ochreous, whitish on sides of abdomen and ochreous yellowish across hind margins or hinder halves of tergites, with much dark or black scaling discally above; that on pleurae, venter and legs whitish. Wings slightly greyish hyaline, the veins blackish brown; enclosed submarginal cell narrow throughout; first posterior cell much longer than discoidal cell, its apical stalk rather short; end of second vein not bent upwards very much; halteres dirty yellowish, their knobs brownish above. Head with the frons rather broad, space on vertex about 3.4-3.5 times distance between outer margins of posterior ocelli; space across antennae slightly broader than length of eyes at level of indentation; frons only slightly diverging anteriorly, transversely depressed in front of tubercle; antennal joint 3 broadened bulb-like or club-like basally; proboscis short, stumpy, its labella well developed, scarcely shorter than rest; palps relatively short, not so slender as in three preceding species, longer than in flexicornis, the apical joint also longer than in the latter. Legs with some longish hairs on lower outer parts of front and middle femora; middle ones with 2 or 3 spines below; hind ones with a row of 6 spines below.

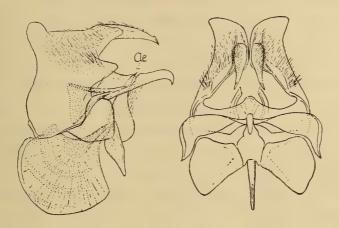
From 2 99 in the South African Museum.

Length of body: about 9 mm. Length of wing: about 8-8½ mm. Locality: North Namaqualand: Lekkersing in the Richtersveld (Mus. Exp., March 1935).

## Pteraulax eremophila n. sp.

This and the following species are characterized by certain characters which seem to relegate them to a sort of special section of *Pteraulax*. Superficially the  $\varphi\varphi$  have some distant resemblance to *Peringueyimyia* and they are also relatively larger and bulkier than  $\varphi\varphi$  of other species of *Pteraulax*.

Body mainly black, only the palps, extreme sides below of tergites and hind margins of sternites pallid, the latter even tending to be whitish; legs black, but the knees and hinder or outer surfaces of, or sometimes even entire, front and middle tibiae and more or less basal parts of front and middle tarsi yellowish. Vestiture with the hair on frons and face entirely white in 3, black on frons in 2 except on sides anteriorly to a variable extent; hairs on ocellar tubercle and on sides above apically on antennal joints 1 and 2 black in both sexes; fine hairs on disc of thorax above, more often those in front of prealar bristles, slightly larger ones across base of thorax and on disc of scutellum, a few scattered ones across middle of hind margins of last three tergites, especially in Q, and across last sternite in & black; hair in collar above, in mesopleural and propleural tufts, on pleurae, coxae, dense tuft on sides of tergite 1 and rest of hairs on sides of abdomen and on venter white; prealar, postalar and scutellar bristles yellowish to reddish golden, a few on scutellum sometimes darker; spines and spicules on legs also yellowish to yellowish red; posterior brush of \$\infty\$ fulvous, more fulvous brownish above; scaling behind eyes cretaceous white; that on thorax and scutellum above gleaming whitish or silvery, denser on sides; that on pleurae and very dense on sternopleuron and coxae contrastingly snowwhite; scaling on abdomen above composed of shiny black and snow-white ones, the latter arranged as relatively narrowish (sometimes broadish) contrasting, transverse bands across hind margins of tergites 1-7 in 3 and 1-6 in 2 and also on sides of inflexed tergites below; scaling on venter dense and snowwhite; scaling on legs also very dense and white, black or blackish brown apically on hind femora, on inner or anterior surfaces of front and middle femora, on hind tibiae and more often also on anterior surfaces of front and middle ones. Wings vitreous hyaline; base, costal cell and basal half of first basal cell more subopaquely whitish; veins dark or blackish brown; enclosed submarginal cell narrow, almost parallel-sided; base of apical submarginal cell acute; first posterior cell subequal in length to discoidal cell, sometimes shorter; the latter cell slightly broadened before its apex; middle cross vein a little beyond middle of discoidal cell; squamae yellowish whitish, their fine hairy fringe whitish; halteres yellowish brownish above, their knobs yellowish to brownish above. Head with the eyes in 3 in contact above for a distance a little less than twice length of tubercle (including little space just before front ocellus); interocular space on vertex in 2 a little less than or about 3 times distance between outer margins of posterior ocelli; from in \( \text{p more or less shiny in basal half, transversely depressed in front of tubercle; antennal joint 3 broadened bulb-like basally, the slender part rather stoutish; proboscis short, stumpy, more or less confined to buccal cavity, its labellar lobes longer than basal part, conspicuously spinuliferous; palps longer than antennal joint 3, their basal joint much longer than apical joint, but much less than twice as long. Legs with the femora in 3 not thicker than in 4, with only fine hairs along outer lower parts of front and middle femora apparent in 3; spines on femora, though well developed, not



Text-fig. 128. Side and ventral views of hypopygium of & Pteraulax eremophila n. sp., showing the aedeagal apparatus in outline (ae = slightly projecting and spine-like aedeagus proper).

conspicuously or markedly long and bristle-like as in the *flexicornis* and *setaria*-section; middle femora with about 2–4 spines on anterior or outer part; hind ones with about 4–14 spines below, of which those basally are arranged more or less in two rows especially in 3, and of which 3–5 are on inner side. *Hypotygium* of 3 (text-fig. 128) enlarged, rather complicated; basal parts produced apically above into a prominent, slightly outwardly directed lobe and along its ventral margin into a conspicuous triangular process; beaked apical joints elongate, narrow and somewhat laterally compressed (more so than is shown in figures which have been drawn from a specimen in liquid); aedeagal apparatus with an elongate beak-like aedeagal process attached to a very broad ramus on each side from basal part; aedeagus itself (ae) scarcely evident, spine-like; lateral struts very broad and shaped as in right-hand figure; other structures connected to aedeagal apparatus shown in outline in two figures. *Last sternite* of 3 elongate, broad, its hind margin emarginate and its apical angles rounded.

From 5 33 and 6 99 in the South African Museum.

Length of body: about 9-11 mm. Length of wing: about 8-9 mm.

Locality: Koup Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952) (types); Merweville Dist. (Zinn, Jan.-Feb., 1947); Laingsburg Dist.

(Mus. Exp., Feb. 1935). South-West Africa: Rehoboth (Bell-Marley, Nov. 1937–Jan. 1938).

This species is chiefly characterized by the conspicuous transverse bands of white scaling across hind margins of abdomen and its relatively large size. It appears to be rather variable in the colour of the fine hairs on the thorax and in the extent of the white bands across abdomen. The  $\mathcal{P}$ -paratype from Merweville Dist. differs from the  $\mathcal{P}$ -allotype in having more extensive whitish hairs on frons anteriorly paler, more yellowish hairs on disc and sides of thorax, broader transverse bands of white scaling across hind margins of tergites, yellowish knobs to halteres and a first posterior cell which is distinctly much shorter than discoidal cell. The  $\mathcal{P}$  from Rehoboth in South-West Africa also shows slight differences; its front and middle tibiae being entirely yellow, the hairs on front part of frons more extensively whitish and the halteres also yellow-knobbed.

#### Pteraulax cinctalis n. sp.

Three specimens from Southern Rhodesia in the collections before me resemble eremophila so closely that they may almost be considered as only representing a northern form of the latter. Certain slight but distinct and constant differences however suggest a separate specific rank. From eremophila they differ in the following respects: Extreme sides of tergites more distinctly or more broadly reddish; hind margins of sternites more broadly pallid or yellowish; all the tibiae, especially hind ones, entirely yellowish, the latter apparently thinner and yellowish or white-scaled, not black-scaled as in eremophila; hairs on disc of thorax tinted reddish brownish in Q, without any darkish ones in front of prealar bristles or across base; prealar, postalar and scutellar bristles more pallid or paler yellowish; transverse bands of white scaling on abdomen tending to be even broader than in some forms of eremophila, and also tending to form a central row of discal patches posteriorly; bristly hairs across hind margins of tergites, especially posteriorly, less developed, shorter; veins in wings paler, more yellowish; knobs of halteres yellowish; antennae distinctly more widely separated, the space a little broader than length of antennal joint I and the latter relatively shorter than in eremophila.

From 1 3 and 2 99 (types in the Commonwealth Institute and a paratype in the South African Museum).

Length of body: about 9-10 mm.

Length of wing: about 8 mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 1 Oct. 1922) (types); Bulawayo (Stevenson, 19 Oct. 1924).

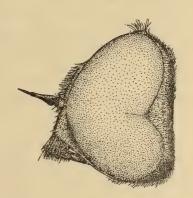
# Gen. Pteraulacodes n. gen.

This genus is very near *Pteraulax* with which it agrees and from which it differs in the following respects:

Body similarly shaped; abdomen in 33 also cylindrical and in 99 conically pointed, also predominantly black, but with the sides of abdomen, hind margins

of sternites, the femora and the tibiae yellowish or yellowish reddish to a variable extent. Vestiture with the erect hairs on body less developed, relatively sparser and shorter; hair on frons distinctly shorter and sparser; that on face for the greater part wanting, present only as a conspicuous brush-like tuft anteriorly and overhanging apex of buccal cavity; that on disc of thorax very much shorter, finer and sparser; vestiture on mesopleuron also sparser and shorter, composed of scales and bristly hairs, greater part of pleurae even barer than in Pteraulax; metanotal tuft also wanting; prealar, postalar and scutellar bristles however similarly developed, but apparently fewer in number; hair on abdomen, excepting only dense brush on sides of tergite 1, also sparse; transversely arranged bristly hairs across hind margins of tergites short, not developed to the same extent as in Pteraulax, conspicuous and longish only on last tergite in 33; scaling slightly more developed and denser than in Pteraulax, very dense on frons and face, mostly lanceolate in shape, finer on body above; that on pleurae, mesopleuron, sternopleuron, hind margin of metapleural part and on coxae dense and cretaceous whitish; that on venter also very dense and that on legs as in Pteraulax. Wings with the membrane also wrinkled; basal comb wanting; three submarginal cells present; first posterior cell however open apically, not acute and closed as in Pteraulax; squamae much smaller, more normal. Head (text-fig. 129) large, subglobular, broader than thorax; eyes large, indented in hind margin and also with a short bisecting line extending

from indentation, also in contact for some distance in front of ocellar tubercle in 33, separated on vertex in QQ; occiput like that of Pteraulax, the medial sulcus tending to be narrower: from also convex in 33 and anteriorly in QQ; face from side however distinctly subconically prominent or snoutlike, not gradually sloping into buccal cavity as in Pteraulax, but overhanging the buccal cavity, the brush-like tuft of hair emphasizing this character; buccal cavity deep; genae very narrow and linear, the genal furrows not so distinct as in Pteraulax; antennae with joint 1 relatively much shorter, cup-like and with much fewer and sparser hairs; joint 3 conical, gradually broadened basally, ending



TEXT-FIG. 129. Head of & Pteraulacodes karooënsis n. gen. and n. sp.

apically in a slender joint-like terminal joint bearing a relatively long style; proboscis confined to buccal cavity or only projecting slightly beyond buccal cavity; palps slender, longish, biarticulate, the apical joint clavate and very much shorter than basal joint. Legs without any dense fine or longish hairs on front and middle femora below; middle and hind femora also with slender bristle-like spines below as in Pteraulax, those near base on hind femora also long and slender and more or less disposed irregularly in pairs, in 33 especially;

tibiae also with the spicules on outer part long and bristle-like, and with the 2 or 3 lower spurs on middle and hind ones also markedly long and slender; claws with their apices bent downwards and the pulvilli well developed. Genital brush in  $\mathfrak{PP}$  also terminal. Apical angles of last sternite in  $\mathfrak{F}$  slightly produced, more lobe-like and not rectangular as in Pteraulax. Hypopygium of  $\mathfrak{F}$  (text-fig. 130) very much like that of Pteraulax; dorsal parts of basal parts also finely and relatively poorly covered with hair; beaked apical joints compressed, curved and elongate; a ventral aedeagal process in the form of a rod-like process also present; apex of aedeagus also ending in a transverse slit-like aperture in aedeagal process; lateral struts broadish, shoe-horn-shaped; basal strut with a triangular lateral extension on each side basally and with its apical margin along dorsal aspect also with a lateral ledge-like extension.

Superficially this genus also resembles *Plesiocera* and more especially *Stomylomyia*, from both of which it may readily be distinguished by the absence of a well-marked-off facial cone, the bisected hind margins of eyes, the longish and slender terminal element and style of antennal joint 3, the slender and bristle-like spicules on outer parts of tibiae, bristle-like spines on hind femora and in the case of *Plesiocera* by the presence of three submarginal cells in the wings.

The genotype species is Pteraulacodes karooënsis n. sp.

#### Pteraulacodes karooënsis n. sp.

Body predominantly black; antennal joint 1, buccal rims and cavity, palps and to a certain extent sides of face ivory yellowish; narrow hind margin of metapleural part, sides of tergites, hind margins of sternites and in 3 greater part of last sternite yellowish or yellowish reddish; legs with coxae to a certain extent, trochanters and greater part of femora, tibiae and tarsi vellowish: hind femora above in apical halves or apical parts, apices of hind tibiae to a certain extent and apical halves of tarsi darkened or blackish brownish. Vestiture on frons and anterior margin of face gleaming pale sericeous yellowish in 3; that on frons predominantly black in 9; that on face however also pale sericeous yellowish to golden across apex in 9; that across front part of thorax above whitish or straw-coloured whitish; sparse hairs on disc in Q dark in certain lights; bristly hairs and scale-like hairs on mesopleuron and bristly hairs on propleural part and on coxae gleaming sericeous whitish in both sexes; prealar, postalar and scutellar bristles reddish yellowish to reddish, with some dark bristly hairs across base of thorax; hair on sides of tergite 1 and on greater part of abdomen gleaming sericeous whitish and in \$\text{\$\text{\$}}\$ sericeous yellowish; stouter bristly elements on last tergite more sericeous yellowish or golden in A: scaling on face, head below, pleurae, coxae, venter and legs cretaceous whitish: that on frons, occiput and behind eyes more dull ochreous yellowish; that densely on thorax and scutellum above and on greater part of abdomen above deeper ochreous yellowish; that on sides of tergites below however more whitish; that on abdomen above in Q dark, the pale scaling on abdomen above denser and band-like across hind margins of tergites. Wings vitreous hyaline, iridescent,

the base and costal cell with a feeble whitish subopacity; veins yellowish brownish or brownish to blackish brownish, usually paler at base; second vein not much bent up at its end; middle cross vein varying in position, either at about, or a little before, or a little beyond, middle of discoidal cell; squamae opaquely yellowish whitish, with a fringe of fine whitish hairs; halteres yellowish, their knobs almost whitish above. *Head* (text-fig. 129) with the eyes in contact above for a distance quite 2 times length of ocellar tubercle in 3; interocular space on vertex in 2 nearly or quite 3 times distance between outer margins of posterior ocelli; frons in 2 gradually diverging anteriorly, scarcely

impressed in front of tubercle; antennae with joint 2 transverse, much shorter than 1, broader than long, almost discoidal; joint 3 gradually broadened basally without a distinct and well-marked-off slender apical part, its slender terminal joint plus its longish style a very little more than half length of 3; proboscis about ·8-1 mm. long, its labellar lobes much shorter than rest of proboscis and with fine hair-like spinules; palps subequal in length to antennal joint 3 (including style), the apical joint subequal in length to combined length of antennal joints 1 and 2. Legs with the spines and spicules pallid or very pale yellowish; middle femora with or without a spine on inner lower aspect beyond middle; hind ones in 3 with about 5 or 6 spines from near base to apex below of which the basal ones are longer and in irregular pairs, with about 3 spines below in apical half in  $\mathcal{Q}$ . Hypopygium of  $\mathcal{J}$  (text-fig. 130) as described for genus.



TEXT-FIG. 130. Side view of hypopygium and dorsal view of beaked apical joint of *3 Pteraulacodes karooënsis* n. gen. and n. sp.

From 2 33 and 2 99 (holotype in the Transvaal Museum and allotype in the South African Museum).

Length of body: about 5-6 mm. Length of wing: about 4-5 mm.

Locality: Karoo: Willowmore (Brauns, 1 Dec. 1920) (holotype), 25 Dec. 1915). Koup Karoo: Koup Siding (Mus. Exp., Nov. 1939) (allotype). Namaqualand: Nigramoep (Smithers, Oct. 1941).

# Chionamoeba and Chiasmella-group

Representatives of this small group show certain characters which are transitional between the *Lomatiinae* and the *Anthracinae* and render their taxonomic position anomalous. The presence of a poorly developed or vestigial plumula and the origin of the second main vein very near or opposite middle cross vein point to distinct affinities with the *Anthracinae*, but the close approximation of the eyes in the 33, the shape of the third antennal joint, absence of a distinct circlet of hairs on apical part of latter joint, position of middle cross vein, poor

development of erect hair, and the structure of the 3-hypopygium relate this group to the *Petrorossia*-group of the *Lomatiinae*.

#### Gen. Chionamoeba Sack

(Sack, p. 543, Abh. Senck. Natur. Ges., xxx, 4, 1909; Becker, p. 448, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, p. 156, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 414, Die Fliegen d. Pal. Reg., lief. 99, 1936.)

This genus, which has not been previously recorded from Africa south of Abyssinia, was very briefly described by Sack and subsequent authors. From the descriptive notes of these authors and from the descriptions of the various Palaearctic and North African species, which have been referred to it, it is evident that the new South African species described below also belongs to this genus. As in the case of many other genera this genus also appears to be very variable and, not having seen any Palaearctic representatives of this genus, it is impossible to state whether the characters given below for the South African form strictly conform to those present in the European species.

Body elongate, resembling that of Petrorossia, with much silvery or brilliant whitish tomentum on head and whitish tomentum on thorax, pleurae and venter. Vestiture in form of whitish erect hairs on frons, face and occiput, longer ones on thorax in front, propleural and mesopleural parts, on tergite 1 and more or less laterally on tergites 2-4 and on venter; those on sides of tergite 1 dense and long and those in mesopleural tuft conspicuous; metanotum without any hair on sides; plumula comparatively feeble and rather sparse; a short prealar bristle (or bristles) and in some cases postalar bristly hairs sometimes present; scaling mostly pale or whitish, sparsely present on frons; that on sides of head narrowish and sparse; that on thorax above hair-like, denser on sides; that on pleurae composed of flattish and hair-like ones, much denser than above; metapleurae bare; scaling on abdomen much denser, more conspicuous; that on legs dense and conspicuous. Head large, subglobular, broader than thorax, its front margin in profile broadly subtumidly rounded, the most projecting part just above antennae; frons broad, without any depression; eyes separated above on vertex, space in 33 scarcely or only slightly broader than ocellar tubercle, in 22 about 3 times distance between outer margins of posterior ocelli; hind margin of eyes angularly or subangularly indented, with a very short bisecting line from it just indicated; face short, not protruding, its apical part around buccal cavity sometimes slightly rim-like, slightly demarcated on each side from front part on each side below antennae by a slight groove-like depression; buccal cavity well developed, its width between eyes below narrower than interocular space in PP; proboscis short, stoutish, confined to buccal acvity, its labellar lobes spinulate, elongate, well developed, only a little shorter than basal part; palps very short, rounded apically, not visibly jointed; antennae separated at bases, joint 1 short, cup-shaped, lodging joint 2, the latter transverse,

rounded or biconvex, usually only slightly shorter than 1 and with bristly hairs only on lower and outer parts; joint 3 broadened onion-like, bulb-like or clublike basally, its apical part or half slender and rod-like, ending in a short terminal joint bearing a style and sometimes a few fine hairs. Scutellum more or less pointed apically, appearing triangular. Wings relatively broad, hyaline or sometimes slightly tinged yellowish in costal and basal parts, sometimes with spot-like infusions; basal comb wanting; costal cell long; second vein originating near or very near middle cross vein, sometimes even opposite it almost at right angles, without a basally directed stump at this bend and apical loop of vein not much recurved; two submarginal cells present and base of vein between them sometimes with a stump; discoidal cell much shorter than first posterior cell; middle cross vein much before middle of discoidal cell; first posterior cell broadly open apically; alula well developed; axillary lobe also broad, broadly rounded, lobe-like. Abdomen elongate, slender, more so in 33. Legs slender; middle and hind femora with some shortish spines on outer apical part; tibiae with small spicules on front ones, longer and more conspicuous ones on the others, their apical spurs short, poorly developed; front tarsi in QQmodified, hairy; claws curved downwards, the front ones as well developed as middle ones or scarcely smaller; pulvilli well developed, though not reaching apices of claws. Hypopygium of 3 of South African species (cf. text-fig. 131) without any process to basal parts on outer side, but with the inner apical part produced; beaked apical joints elongate, cylindrical and curved; aedeagal structure in form of a funnel lodging the aedeagus; lateral struts small. Terminal lamellae at posterior end in last sternite with their dorso-apical angles not produced.

As was stated by Bezzi (loc. cit.), this genus more closely resembles *Petrorossia* than any other genus. Its wings are however distinctly broader, the costal cell much longer, the second vein originates very much nearer middle cross vein, the discoidal cell is much shorter, the middle cross vein is much nearer base of discoidal cell, the axillary lobe and alula are much broader, a feeble plumula is present, the buccal cavity is much narrower, the frons is broader and without a depression in front of ocellar tubercle in  $\varphi\varphi$ , the spicules on tibiae are much shorter and without a long curved bristly hair apically above between the claws.

The systematic position of this genus is anomalous. Sack described it under the Spongostylinae (Anthracinae) and Bezzi transferred it to the Lomatiinae. As it has characters in common with certain other aberrant genera, such as Aphoebantus, Petrorossia, Pteraulax, Chiasmella, etc., which on the strength of certain characters are themselves either referred to one or other of these subfamilies, both authors have some justification for their claims. It depends upon the characters that are chosen. It is, however, evident that there is a very wide gap between the genus Lomatia on the one hand and the genera Anthrax and Argyramoeba on the other. Not before all the known representatives of these various genera are collectively studied will it be possible to relegate such aberrant and

transitional forms to their respective positions in these two subfamilies or to create new groups to contain them. As this genus, however, has a few more characters in common with *Petrorossia* than with the *Anthrax*-group it is here provisionally appended to the *Lomatiinae*. From *Anthrax* and *Argyramoeba* this genus differs in having a more elongate body, no or much fewer bristles on body, less dense erect hair, a not concavely saucer-shaped second antennal joint, a terminal joint to antennal joint 3 which is not provided with a distinct and conspicuous circlet of hairs, a second vein not originating at right angles at more or less or exactly opposite middle cross vein and this base also without a stump, fewer spines on femora, much shorter and less conspicuous spicules and spurs on tibiae, etc. The other aberrant genus *Chiasmella Bezz.* (p. 156, *The Bombyliidae of the Ethiopian Region*, 1924), which Engel relegated as a subgenus of *Chionamoeba*, is not represented in the collections, but judging from Bezzi's generic description it is obviously very near *Chionamoeba*.

The only known representative of *Chionamoeba* in South Africa is a new species described below.

#### Chionamoeba meridionalis n. sp.

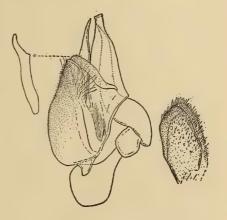
Body black; apical parts or even entire second antennal joints in ♀ sometimes yellowish; edges of buccal cavity pallid; spiracular openings on pleurae also yellowish; hind margins of tergites, more broadly on extreme sides below or even entire sides below in some  $\mathcal{Q}_{+}^{\circ}$ , and hind margins of sternites yellowish or pale yellowish brownish; coxae and femora black, the extreme apices of the latter yellowish; tibiae yellowish, their apices darkened, the tibiae in 3 sometimes tending to be darkened, the front tarsi and more than apical halves of the middle and hind ones dark or blackish brown, bases of claws and pulvilli yellowish. Vestiture with the hairs predominantly sericeous or snow-whitish; fine hairs on occiput sometimes gleaming slightly pale sericeous yellowish in certain lights; genital tuft in ♀ gleaming whitish to very pale sericeous yellowish white in different lights; fine hairs above on tergites 3-7 in ♀ dark, entirely white in ♂; hair-fringe across hind margin of last tergite in ♀ blackish brown; hair on venter whitish; that across hind margin of last sternite in 2 sometimes also dark; short prealar bristle on each side white or very pale yellowish; spines and spicules on legs black; tomentum on frons and head in front brilliantly gleaming silvery whitish; that on rest of body duller whitish; scaling on sides of head, pleurae, sides of abdomen, venter and legs cretaceous whitish; sparse ones on frons and hair-like ones on thorax discally above and at base also whitish, but sometimes gleaming slightly more yellowish in \(\tilde{\pi}\); that on abdomen above in 3 very dense and snow-white, but more ochreous brownish towards base and discally in Q, becoming more yellowish to whitish on sides and posteriorly, that discally on tergites 2 and 3 in 3 also yellowish brownish. Wings predominantly vitreous hyaline, iridescent; base, costal cell, base of marginal cell and first and second basal cells and base of discoidal cell with a slight yellowish tinge, and a slight or distinct blackish brown spot-like infuscation at base of third vein; veins mostly pale yellowish, becoming darker towards apex; costal cell extending to near apex of second vein; the latter originating nearly at right angles at a point as far away from middle cross vein as length of latter; vein between submarginal cells without a stump at its base; discoidal cell a little more than two-thirds as long as first posterior cell; middle cross vein at a point between apical third and fifth of discoidal cell; squamae opaquely white, their fringes snow-whitish; halteres yellowish, their knobs whitish. Head with the interocular space in  $\Im$  only a little broader than ocellar tubercle and in  $\Im$  about or nearly  $\Im$  times distance between outer margins of

posterior ocelli; frons at broadest part a little more than twice width of eyes seen from in front; stoutish rod-like apical part of antennal joint 3 nearly or about twice as long as bulb-like base. Legs with about 2 or 3 short spines on middle femora and about 4-9 on outer and upper apical aspect of hind ones. Hypopygium of 3 (text-fig. 131) as described for genus.

From 6 33 and 9 99 (holotype in the Rhodesian Museum, allotype in the South African Museum and paratypes in the Durban Museum and in Museum of Natural History, Brussels).

Length of body: about  $4\frac{1}{2}-9\frac{1}{2}$  mm. Length of wing: about 4-9 mm.

Locality: Southern Rhodesia: Saw Mills (Rhod. Mus., 22 Dec. 1928



Text-fig. 131. Side view of hypopygium, dorsal view of right beaked apical joint, and (below right) left terminal lamella of & Chionamoeba meridionalis n. sp.

(types)). Natal: Durban (Isipingo N.) (Bevis, 25 Feb. 1940); Durban (Barker, 1 Feb. 1919); Amanzimtoti (Zumpt, Jan. 1950). Zululand: Mfongosi (Jones, March 1917). Belgian Congo: Lake Tanganyika; Albertville (F. J. Francois, 21 Feb. 1951).

Compared with descriptions of Palaearctic species this species appears to be very near *nivea* Rossi from Southern Europe and North Africa, but appears to differ in having entirely white hair on bases of antennae, in having dark hairs on abdomen above posteriorly in  $\mathfrak{P}$ , no stump to base of vein between submarginal cells, apically darkened or even entirely darkened tibiae, broader frontal part in front of antennae, slightly narrower interocular space in  $\mathfrak{F}$ , etc. The specimens from the Belgian Congo differ very slightly from the southern form in having the second antennal joints dark, dark buccal rims, a more intense yellowish tinge in wings and a more conspicuous dark spot at base of third vein. Mr. Francois states that he caught the Congo specimens on sand during the hottest part of the day.

#### Subfam, Anthracinae

The African genera Xeramoeba n. gen., Anthrax Scop., Argyramoeba Schin. and Dicranoclista Bezz. belonging to this subfamily are easily distinguished from the genera of the preceding subfamilies in the following respects: The second main vein (R<sub>2</sub>+R<sub>3</sub>) in the wings originates from the third vein (R<sub>4</sub>+R<sub>5</sub>) at right angles either at a point not farther away from middle cross vein (r-m) than length of the latter or more often very near to middle cross vein or opposite in line with it, never near base of third vein or halfway between middle cross vein and base of third vein. With a few exceptions there is a tendency for bases of both the second vein and upper cubital branch to have a basally directed stump of variable length. A plumula or small tuft of hair on ligamentous connection between the squama and scutellum is always present and well developed. The hind margin of eyes is always distinctly sinuous or more usually angularly or deeply indented and with a distinct, abbreviated, bisecting line extending forwards from indentation. The antennae are on the whole more widely separated, the distance between their bases usually more, or considerably more, than length of the first joint and the base of the third joint is usually rapidly broadened, distinctly bulb-like, onion-shaped, or discoidal. Moreover the slender part of joint 3 usually has a terminal joint-like element bearing the style and apically also a circlet or crown of hairs. Other characters which also distinguish this group are the bare metapleurae, the short proboscis which is confined to the buccal cavity and the presence of conspicuous, broadish, flattened, lanceolate, bat-shaped, wedge-shaped, or cuneiform, white scales across the hind margins of the tergites. These rows of scales are more or less interrupted discally, dense on the sides and those on last two or three segments very dense, extensive, conspicuous and usually brilliantly silvery whitish, especially in 33.

The only other subfamily with which representatives of this group can be confused is the *Exoprosopinae* which also have some of the above-mentioned characters. From the latter they may, however, be distinguished by the presence of a terminal stylar or joint-like element bearing a style and a circlet of hairs, by the bare metapleurae, the absence of flattened, scale-like hairs along the hind margins of alula and squama, the presence of distinct pulvilli and by the presence of a tuft of hairs and not a circlet of spines on ovipositor of  $\mathfrak{P}\mathfrak{P}$ .

As in the case of most Bombyliidae very little is known as regards the life histories of members of this group. From what is known in the case of Palaearctic and American forms it appears that species of Anthrax, Argyramoeba and Spongostylum are parasitic on the larvae or in the nests of various kinds of solitary bees and wasps and fossorial wasps. A species of Spongostylum is, however, said to parasitize the grubs of certain Cicindelid-beetles.

## Gen. Xeramoeba n. gen.

This new genus, represented by only two  $\Im$  and two  $\Im$  in the collections, agrees with *Chionamoeba* of the previous group in many respects, but also differs in certain important respects as follows:

Body less elongate, relatively shorter, more like that of a Villa or Thyridanthrax; abdomen relatively broader, more triangularly ovate; integument of frons and face, sides of head and pleurae much duller, covered with faint whitish pruinescence, not brilliantly silvery. Vestiture similarly pale, the hairs and bristly hairs, though relatively sparsely developed, slightly longer than in Chionamoeba; those on frons and face much longer and denser; those on body above also denser and longer, with distinctly more hairs on abdomen; those in collar, mesopleural tuft and on propleural parts as dense as in the other genus; prealar and postalar bristles longer; plumula well developed; hairs on pleurae sparse; metapleurae also bare; scaling also predominantly pale and sparse on head in front; that on thorax above also hair-like; that on abdomen above less uniform, composed of fine hair-like ones and slightly longer and broader ones, the latter arranged more across hind margins or hinder parts of tergites; scaling on legs dense and flattened as in Chionamoeba. Head also large, subglobular, broader than thorax, its front margin in profile not so tumidly prominent at level of antennae, the antennal bases appearing distinctly slightly more depressed; frons relatively narrower, its margins distinctly less rapidly broadening anteriorly, thus relatively less broad just above antennae, a distinct central groove in basal half or part present in  $\mathcal{P}$ ; interocular space also broad, the eyes widely separated in both sexes, more narrowly in 33 and in 33 more widely than in Chionamoeba; occipital groove also in form of a foveate depression leading into a gap, the depression however broader, the lobes not touching as in the preceding genus; ocellar tubercle more pimple-like; face distinctly, though slightly, more tumid or convex medially and discally, its apical margin not slightly rim-like; genal furrows or slits relatively longer; proboscis short, confined to buccal cavity, its labella also well developed and spinulate; palps very short, broadened apically and provided with hairs; hind margin of eyes angularly indented, with a very much longer bisecting line; antennae (textfig. 132, top) separated, joint 1 relatively longer, joint 2 disc-shaped, transverse, narrower than apex of 1, joint 3 with a broad bulb-shaped base and a relatively stouter and shorter slender part, the latter ending in a short and bluntish terminal joint bearing a distinct crown of fine short hairs. Wings very similar, relatively broad, hyaline; basal comb small, but more developed than in Chionamoeba; only two submarginal cells present; costal cell shorter; second vein originating almost at right angles opposite or near middle cross vein, also without a stump; base of upper cubital branch without a stump; first posterior cell broadly open; middle cross vein much before middle of discoidal cell; lower vein of latter sinuous, more angularly bent at base and there with a tendency to develop a stump; axillary lobe much broader than anal cell. Legs slightly stouter and relatively shorter; front femora unarmed; middle and hind ones with some spines on anterior lower aspect; tibiae with the spicules distinctly more developed and more conspicuous than in Chionamoeba, those on lower part feeble and scattered, the apical spurs distinctly longer and more strongly developed, the hind ones the strongest; front tarsi in QQ also modified and hairy, shorter than the others; claws curved downwards, the front ones not reduced; pulvilli present. Hypopygium of 3 (text-fig. 132, lower figures) with a rather conspicuous basal process to the shell-like basal parts which also have some hairs dorso-apically; beaked apical joints compressed and twisted as shown in the figures; aedeagal apparatus in form of a tube-like or funnel-like process lodging the aedeagus proper and ending apically below in a downwardly directed recurved hook or process. As is obvious from a comparison of the figures the hypopygium of this genus is different from that of the preceding genus Chionamoeba and the following genus Anthrax. The tube-like aedeagal process, however, is reminiscent of that of the former and the downwardly directed apical hook of this structure also resembles that present in some species of Anthrax.

This genus also shows some affinities with Anthrax, but differs in having a broader foveate depression behind ocellar tubercle, a broader occipital gap, no bare space on face, relatively longer face which is discally slightly prominent, shorter and pale hairs on head in front, short hairs on abdomen, absence of dense or conspicuous tufts on sides of tergites, and in its wing-characters. As it has more in common with the Anthracinae than with the Petrorossia and Chionamoeba-groups it is provisionally relegated to this subfamily. Represented by only the genotype species Xeramoeba apricaria n. sp.

## Xeramoeba apricaria n. sp.

Body black, but hind margin of metapleurae, hind margins of tergites, broader posteriorly and on sides, the inflexed sides of abdomen and broad hind margins of sternites and apical part of abdomen in 3 yellowish reddish; buccal cavity yellowish; proboscis blackish brown; legs predominantly pale yellowish reddish, the coxae mainly dark or blackish, upper apical part of hind femora dark brownish to a variable extent, the apical parts of tarsi darkened, and more than apical halves of claws black. Vestiture with the bristly hairs on head in front including antennae, excepting dark hairs on upper aspect of second joints, gleaming sericeous yellowish, slightly paler on face; fine hair on occiput in Q more whitish; fine shortish hairs on disc of thorax pale sericeous yellowish; longer hair in collar, mesopleural tuft, propleural and prosternal parts and sparse ones on pleurae, bristly ones on coxae, plumula, tuft on sides of tergite 1, hairs on venter and inflexed sides of abdomen sericeous whitish; shortish bristly hairs on abdomen above, especially posteriorly and on sides of tergites, gleaming more sericeous yellowish in Q; prealar, postalar and scutellar bristles whitish, or very pale sericeous yellowish only in certain lights; spines and spicules on legs black; sparse scaling on frons anteriorly pale yellowish; fine ones on sides of head more whitish; fine hair-like scales on disc of thorax and scutellum pale sericeous yellowish in certain lights; the longer and denser ones on sides more whitish; denser scales on pleurae and coxae snow-whitish; longish ones across hind border of scutellum also white like the longish hair-like ones across hind margin of tergite 1; fine hair-like scaling on rest of abdomen above reddish brownish on disc of tergite 2 and to a certain extent also across 3 and 4, but with longer ones on 3-7 which are yellowish in  $\mathcal{D}$  and whitish in  $\mathcal{D}$ , those across these tergites, especially on sides and on last three tergites, appearing

more whitish; scales on inflexed sides distinctly more white and also broader; scaling on venter and legs snow-whitish, that on tibiae appearing more yellowish in certain lights. Wings glassy hyaline, iridescent, the extreme base and costal cell subopaquely yellowish whitish; veins brownish, but false vein in costal cell yellowish; middle cross vein at about basal third or fourth of discoidal cell;

squamae whitish and white-fringed; halteres vellowish, their ovate knobs slightly paler apically. Head with the central groove in basal part of frons in ♀ broad, fairly deep; interocular space on vertex in ♀ about 3 times width of ocellar tubercle and in 3 about 2 times width of tubercle; antennae (text-fig. 132, upper figure) separated by about, or a little more than, length of joint i in Q, slightly less in 3; joint 2 disc-shaped; broad base of joint 3 bulb-shaped, the more slender apical part rather stoutish, ending apically in a short bluntish terminal joint bearing a crown of fine hairs. Legs with about 2 subapical spines on lower anterior part and sometimes 2 in upper apical part of middle femora; hind ones with about 3 to 5 spines on anterior or outer lower part and a few on anterior apical part; front tarsi much shorter than front tibiae. Hypopygium of 3 (text-fig. 132, lower figures) as described for genus.

From 2 33 and 2 99 (types in the South . African Museum).

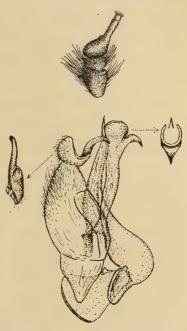
Length of body: about  $5\frac{1}{2}$ – $7\frac{1}{2}$  mm.

Length of wing: about 6-8½ mm.

Locality: Koup Karoo: Koup Siding (Mus.

Exp., Nov. 1939) (holotype); Merweville Dist. (Zinn, Jan.-Feb. 1947). Karoo: Aberdeen (Mus. Exp., Nov. 1935) (allotype).

This species has a superficial resemblance to a clear-winged Villa or Thyridanthrax.



Text-fig. 132. Top: Right antenna of ♀ Xeramoeba apricaria n. gen. and n. sp. Below: Side view of hypopygium, dorso-apical view of right beaked apical joint, and apical view of the aedeagal process of ♂ of same species.

# Gen. Anthrax Scop.

(Scopoli, p. 358, Entom. Carniol., 1763; Schiner, in part, p. 51, Wien. Ent. Monatschr., iv, 1860; Loew, in part, p. 209, Dipt. Faun. Sudafr., i, 1860; Bezzi, p. 34, Zeitschr. f. Hymen. u. Dipt., 1908; Becker, in part, p. 445, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, p. 121, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 158, The Bombyliidae of the Ethiopian Region, 1924; Engel, p. 420, Die Fliegen d. Pal. Reg., lief. 99, 1936; Austen, p. 109, Bombyliidae of Palestine, 1937.)

There appears to be some confusion as to the generic identity of species referred to Anthrax. According to Bezzi the genus Anthrax, as used in a very broad sense by the various authors, corresponds to the genus Argyramoeba s. l. of Schiner. The attempt of Sack in his monograph (pp. 503–46, Abh. Senckenb. Natur. Ges., xxx, 4, 1909) to restrict certain Palaearctic species to various new genera erected by him have not met with any approval, and Becker, Bezzi and Engel relegated his new genera Chalcamoeba, Leucamoeba and Satyramoeba as synonyms of Anthrax (Argyramoeba s. l.) as defined by them. This procedure has been adopted in this monograph and all the South African species in the collections before me have been referred to Anthrax. The distinguishing characters of this genus, as based on South African forms, are as follows:

Body usually black; facial part, sutural parts of pleurae and venter sometimes more brownish or yellowish; hind margins of tergites posteriorly, especially on sides of last four segments in 33, inflexed sides of abdomen and hind margins of sternites often yellowish, brownish or reddish to a variable extent; legs with the femora usually dark, blackish brown or black, sometimes paler, often with the lower apical part more yellowish, the tibiae and tarsi usually paler, more yellowish or brownish, rarely as dark as femora, the legs sometimes entirely pale; apical parts or entire claws always dark; a silvery whitish or sometimes a golden pruinescence sometimes present on sides of frons and face along margins of eyes or on pleural parts and this pruinescence sometimes broken up into spots or patches. Vestiture in the form of erect hairs, bristly hairs and bristles, fine hair-like scales, flattened scales and usually more or less conspicuous flattened, broadish, white scales; stoutish prealar and postalar bristles always present and the bristles across hind border of scutellum, across hind margins of tergites, especially posteriorly, and on sides well developed and conspicuous; hairs and bristles on abdomen above either scattered and dense all over the tergites or more often more or less concentrated transversely in rows across hind margins or hinder parts of tergites; bristly hairs on sides of abdomen almost always black, long, dense, conspicuous, shaggy or in tufts, but those on sides of tergite 1 usually predominantly white; hairs on pleurae, except in mesopleural tuft, relatively sparse and longish hair-like scales being more conspicuous there; metapleural tuft comparatively small; hairs on face dense in front, absent on a bare space below antennae; hairs in collar region very rarely without some or numerous whitish ones across anterior part; fine hair-like scaling on thorax denser and longer on sides; broadish, flattened, bat-shaped, wedge-shaped or cuneiform white scales usually present across hind margins of tergites, and usually interrupted discally, those on sides of last two or three segments more conspicuous, longer, sometimes tuft-like; rest of the white scaling on these segments, especially in 33, usually very dense, conspicuous and silvery or brilliantly silvery, sometimes arranged transversely; those across hind margin of tergite I on sides usually longish and hair-like; scaling on venter either hair-like or flattened; white scaling on abdomen above may or may not extend right round to inflexed part between the black tufts; scaling on femora and tibiae usually

flattened and that on coxae more often fine and hair-like. Wings (pl. i, figs. 1-17) more commonly with the base, costal cell and anterior basal part yellowish brownish, brownish to chocolate brownish to a variable extent, sometimes extensive, in addition with or without a variable number of spots or spot-like infuscations on cross veins, the wings sometimes extensively spotted or with large confluent spots and in some cases even entirely dark or infuscated, rarely predominantly or entirely hyaline; two submarginal cells always present; base of second vein originating opposite or just in front of middle cross vein, but sometimes a little distance in front of it and usually at right angles, rarely more obtusely, more often with a distinct and relatively long basally-directed stump, the vein itself sometimes very sinuous and with or without a deep backward bend or loop, sometimes with a short stump at bend of loop; middle cross vein usually at about the middle or a little before middle of discoidal cell; lower vein of the latter cell usually sinuous, sometimes angularly or subangularly bent and even with a short stump at this bend; first posterior cell either broadly open on hind border or sometimes narrowed apically; anal cell usually much narrowed apically; axillary lobe rarely not much broader than anal cell; squamae either entirely or for the greater part subopaquely whitish and whitefringed; plumula well developed. Head almost spherical; occipital gap narrow, the lobes contiguous or subcontiguous; occiput with very dense, fine, shortish hairs round its rims; eyes with the hind margin subangularly or

angularly indented and a distinct bisecting line of variable length present; ocellar tubercle small, prominent, pimple-like and some distance away from beginning of occipital furrow; interocular space at narrowest part just in front of ocellar tubercle always much more than width of tubercle, the eyes thus never very close together, this space relatively broader in QQ than in QQ; frons rapidly broadening apically, with a distinct, rarely indistinct, central groove basally in front of tubercle in QQ, anterior part of frons usually convex; antennae (text-fig. 133 and also 161) never entirely contiguous, almost always separated by at least length of antennal joint 1, joint 1 usually broader apically than basally, its inner lower part usually projecting slightly; joint 2 disc-shaped, lens-shaped, barrel-shaped or subglobular,



TEXT-FIG. 133. Inner aspect of right antenna of 3 Anthrax conspurcata Wied.

narrower than base of joint 3; the latter with its basal part broad, dilated, bulb-shaped, onion-shaped or discoidal, its lower edge sometimes rim-like and projecting, the base of 3 never fitting closely ball-and-socket-like in joint 2, the latter joined on to 3 by a short peduncle, the slender rod-like part of joint 3 of variable length, ending in a terminal joint or stylar element of variable length, the latter pointed or ending in a sort of fine stylet, sometimes it is blunted, the terminal joint always with a distinct crown or circlet or pencil of hairs; proboscis short, stoutish, confined to buccal cavity, its labellar part well developed,

broad and spinulate; palps very short, confined to buccal cavity, their apical parts club-like and provided with hairs; genal part only evident anteriorly on each side of buccal cavity as a deep, narrowish, foveate or sunken depression or pit. Legs usually with a variable number of spines in a row on lower anterior aspect of femora, those on front ones fewer or sometimes wanting, those on hind femora more strongly developed, often duplicated or triplicated basally below in 33 especially, usually with some spines also present on outer and upper apical aspect; fine hairs or fine bristly hairs usually present on hinder surfaces of front and middle femora; tibiae with four rows of spicules, those in upper rows usually denser and longer and those on lower anterior aspect of front ones wanting or very minute; apical spines on middle and hind tibiae well developed, sometimes markedly long, especially on lower apical aspect; front tarsi in QQ modified, shorter than in 33, the last four joints with fairly dense fine hairs and tending to be slightly thickened, their claws also much smaller than the others; claws and pulvilli well developed, the former in 33 scarcely or not more developed or longer than in QQ, but anterior claws in QQ always more reduced. Hypopygium of 33 (text-figs. 135-65) with the two symmetrical clasper-like basal parts always produced basally into a flattened process, their apical part in most cases also produced into a blade-like or prong-like process; beaked apical joints very variable in form and shape, usually much flattened and twisted, or leaf-like, their upper and lower margins extended to a variable extent and the pointed apex or beak usually recurved outwardly and backwardly to a variable extent, sometimes bifid apically or with more than one projection or tooth, their surfaces or upper basal part rarely with conspicuous hairs; aedeagal complex usually with the apical part of the guidepart, which lodges the aedeagus proper, produced ventralwards into a recurved hook or plate, flanked basally on each side by a subsidiary process or tooth, sometimes also with another smaller process on each side, sometimes with a medial flattened keel-like or wattle-like extension or even a disc-like expansion below apical part; lateral struts and medial basal strut usually large and well developed, broad, the former usually tongue-shaped, ladle-shaped or shoehornshaped, the latter with its dorsal and basal edge often expanded on each side into a flange or wing-like extension, its posterior margin sometimes also with a flattened lateral extension. Last sternite opposite hypopygium sometimes slightly notched or indented apically, rarely with its posterior angles produced hook-like. Terminal lamellae in last sternite variable in shape, their dorsoapical part produced into a hook-like or spine-like process in some species.

The habits in the field of representatives of this genus are much like those of other Bombyijldae found in the drier and semi-arid parts of South Africa. They are more frequently found resting on the sand or bare patches of soil in the sun. During spring and early summer, when they are abundant both in numbers and species, they are often found on the flowers of the ubiquitous Mesembryanthemums and Compositae. By far the greater number of South African species

are found in the drier parts of the Union. They are thus very well represented in the Karoo, Namaqualand, Bushmanland, the drier parts of the Orange Free State, the Kalahari, Bechuanaland, and South-West Africa. Some species, however, appear to be very widely distributed, occurring in all types of ecological environments in the subcontinent and even extending into the more subtropical and tropical parts of East Africa. A large number of species appear to frequent only the savannah, grass-veld and broken thorn-bush type of country. Quite a number of species appear to be the specific counterparts of species occurring in North Africa and the southern Palaearctic region.

The larvae of the various species of Anthrax are parasitic in the nests of solitary bees such as Anthophora, Megachile, Osmia, etc., and wasps such as Odynerus and many species of fossorial wasps. The abundance of Anthrax species in the drier and semi-arid parts of South Africa is probably due to the great variety of Hymenopterous hosts inhabiting the same type of environment. It is however regrettable to state that with the exception of Anthrax diffusus, which is parasitic in the earthen nests of a certain species of Megachile and Anthrax caffer n. sp. which was bred from the nests of Ceratina nasalis, the life history of no other South African species of Anthrax is known. Here is a very wide field for future study and investigation.

Owing to the marked parallelism of wing-pattern among species of Anthrax both in the Ethiopian and Palaearctic Regions and among certain species occurring in the latter region and others peculiar to the former, much confusion in the classification and determination of the various species has resulted. The fact that there are Palaearctic and Oriental species in which the wing-pattern or infuscation is very similar to or identical with that of certain South African forms has resulted in erroneous conclusions as to the geographical distribution of certain forms. As the biological and ecological environment of insects in tropical or subtropical southern Africa is entirely different from that found in north Africa and southern Europe there is no reason to believe that species of Anthrax or any other Bombyliid found parasitizing certain species of Hymenoptera in the Palaearctic region are identical with South African species which have different species of hosts. At most such counterparts can only be considered as distinct subspecies or varieties which through the influences of both the physical and biological environment have so far deviated from the norm that they are in reality specifically different. In view of this superficial similarity of wing-pattern the species of Anthrax are in many cases very difficult to distinguish. This difficulty is increased when specimens or forms transitional in certain accepted wing-characters are present in very large collections. The key to the various known South African species which is appended below is thus merely one of convenience and by no means attempts to allocate species according to natural affinities. As the species of Argyramoeba s. str. resemble those of Anthrax in external appearance and also in certain characters they have also been included in the key.

### Gen. Argyramoeba Schin.

(Schiner, p. 51, Wien. Ent. Monatschr., iv, 1860; Becker, pp. 447-8, Ann. Mus. Zool. Acad. Imp. St. Petersb., xvii, 1912; Bezzi, pp. 221-4, Bull. Soc. Roy. Entom. d. Egypte, 1924.)

(Syn. = Anthracamoeba, Chrysamoeba, Molybdamoeba and Psammatamoeba of Sack, pp. 515, 516, 519 and 536, Abh. Senckenb. Natur. Ges., xxx, 1909; Spongostylum Bezzi, nec Macquart, p. 124, Ann. S. Afr. Mus., xviii, 1921, and p. 167, The Bombyliidae of the Ethiopian Region, 1924; Spongostylum Engel, in part, p. 438, Die Fliegen d. Pal. Reg., lief. 99, 1936; Spongostylum Austen, in part, p. 113, The Bombyliidae of Palestine, 1937.)

There is much confusion in literature as to the generic name to be applied to species belonging to this group. This confusion is in the first place due to the fact that authors have applied in a very broad sense the name Argyramoeba indiscriminately to numerous species now referred to Anthrax. Secondly Sack in his monograph on the Spongostylinae erected four new genera, Anthracamoeba, Chrysamoeba, Molybdamoeba and Psammatamoeba, which Becker subsequently proved to be synonymous with the Argyramoeba s. str. of Schiner. One of these genera, Molybdamoeba, was even restricted to the Palaearctic species Anthrax tripunctatus Wied. which Schiner had already mentioned first as belonging to his Argyramoeba and which Becker subsequently designated as the genotype of the latter. Still a third source of confusion was due to the fact that subsequent authors dealing with both Palaearctic and Ethiopian species ignored Becker's statements in regard to the identity of Argyramoeba s. str. and continued to refer both species with two submarginal cells and those with three submarginal cells in the wings to the genus Spongostylum which Macquart (p. 53, Dipt. Exot., ii, 1840) erected to contain a South American species with three submarginal cells. Subsequently Bezzi in his paper on Egyptian Bombyliidae (loc. cit.), however, adopted the genus Argyramoeba for the group of species having two submarginal cells in the wings. As the genus Spongostylum was described before Argyramoeba the former has priority if it can be satisfactorily proved that it is generically identical with Argyramoeba s. str. Instability as regards the base of the upper cubital branch and its abnormal connection with the second main vein in the wings of Bombyliidae cannot be advanced as an argument against the threecelled stage being accepted as a character of taxonomic value. It is relatively easy to distinguish an abnormal connection from a normal one especially if other distinguishing characters are also taken into account. A careful revision of this group of species is necessary to clear up this confusion between Argyramoeba s. str. and Spongostylum. In view, however, of the fact that all the South African species in the collections before me have two submarginal cells in the wings, white and black tufts on sides of the abdomen and a socket-like second antennal joint as described for the genotype species tripunctata, they are all provisionally referred to the genus Argyramoeba of Schiner though the

entirely different type of hypopygium present in two of the species would appear to necessitate the erection of a separate and new genus to contain them.

The genus Argyramoeba agrees with Anthrax in most of its characters but differs in the following respects: Body with the red on sides of abdomen and across hind margins of tergites and sternites, especially in 33, tending to be more developed. Antennae with joint 2 (text-fig. 134) characteristically flattened, bowl-shaped or saucer-shaped and very concave apically, in this concavity of which the globular or broad bulb-shaped base of joint 3 fits very closely like a ball in a socket. Vestiture with the bristles on sides of thorax in front of wings, on postalar calli, on scutellum and on abdomen above more strongly developed; long hairs on sides of tergites 2–5 in the form of black and white tufts of long flattened,



TEXT-FIG. 134. Inner aspect of right antenna of & Argyramoeba punctipennis (Wied.).

lanceolate or strap-like scale-like hairs among which are intermixed ordinary bristle hairs; tufts on sides of tergites 2 and 4 usually black and those on sides of 3 and 5 white; scaling on body comparatively denser and more developed and the broadish, flattened scales on abdomen posteriorly usually duller, more cretaceous whitish, not brilliantly shining silvery white as in majority of 33 belonging to species of Anthrax; scales among hairs on face relatively longer and denser; hair-like scaling on pleurae distinctly very much denser. Wings in all the known South African species with a variable number of spots on cross veins, but without a very distinctive or well-marked pattern of infuscations and spots as in many species of Anthrax. Legs with the claws of 33 usually more obviously developed and distinctly longer than in 99, distinctly much more so than in the case of Anthrax. Hypopygium of 33 (text-figs. 166-70) differs from those of Anthrax in not having the apical angles of the basal parts produced into a process or prong; beaked apical joints more or less triquetrous basally, usually with a raised or carinate crest or prominence dorsally and basally and ending apically in a single point or beak; aedeagus either thrown into a conspicuous loop enveloped and suspended in a special type of membrane or its base is globularly or spherically dilated; rest of aedeagal complex in form of a V-shaped guide which has apically either two ventrally and backwardly directed toothlike or spine-like processes or two medial beak-like processes, one above the other; lateral struts and basal strut relatively much smaller and much rotated in the species with a loop in the aedeagus; dorso-apical angles of the terminal lamellae in the 33 of the known South African species not produced into a spine-like or hook-like process.

The habits of the species of Argyramoeba are very similar to those of Anthrax. Most of the South African forms are also more common in the drier and semi-arid parts than in forested or wooded regions. The biology and life histories of

South African forms are not known, but one species has been seen to frequent holes made by certain solitary bees belonging to the genus *Fidelia*. According to European observers the larvae of this genus are parasitic in the nests of species of solitary bees and wasps.

Key to the known South African species of Anthrax and Argyramoeba s. str.

- 1. (a) Long vestiture on sides of abdomen in form of dense hairs, bristly hairs or bristles and those on extreme sides of tergites 2-4 black or dark and, if pale, without any long, flattened, scale-like hairs; white scaling posteriorly on abdomen, if present, more often gleaming pearly white or silvery white; antennae (text-fig. 133) with joint 2 usually lens-shaped, disc-shaped, barrel-shaped, or subglobular, with the bulbular or discoidal part of joint 3 not closely lodged ball-and-socket-like in joint 2, but with the latter joined on to joint 3 by a sort of short peduncle.
  - (b) Long vestiture on sides of abdominal tergites 2-5 in form of bristly hairs and black and white tufts of long, flattened, lanceolate, scale-like hairs ending in sharp points or sometimes blunt apically; white scaling on abdomen posteriorly duller, more chalky or cretaceous whitish; antennae (text-fig. 134) with joint 2 very much more flattened, usually more saucer-shaped, bowl-shaped, very concave apically, usually slightly broader across its apical rim than bulbular basal part of joint 3 which fits into it like a ball in a socket, no visible peduncle-like part of joint 2 being apparent.

    . . . . 63 (Argyramoeba Schin. s. str.) (pp. 364, 451)
- 2. (a) Wings very extensively spotted or maculated throughout, the spots or infusions also extending to hind border along some of the posterior veins.
  - (b) Wings not extensively spotted or maculated throughout, spots or infusions if present usually restricted to cross veins, not reaching hind border along posterior veins.
- 3. (a) Wings with more extensive infuscation in form of large spots and confluent patches separated by hyaline areas, occupying entire basal part, across middle and in apical parts at ends of veins and at apex of first posterior cell; vein between submarginal cells very sinuous and with a stump or an indication of one at its posterior bend; second vein originating at right angles opposite or very near middle cross vein and provided with a longish stump at bend; antennae very widely separated, space between them more than length of joint 1; joint 2 flattened, saucer-shaped; bulbular part of joint 3 discoidal and its basal margin rim-like; hairs on head shorter and denser; that on rest of body, especially on sides above, much denser; white scaling on disc of abdomen less developed, without any white ones across hind margins of tergites on extreme sides; venter without any flattened white scaling; scaling on legs dark or brownish; hind tibiae with a row of dense spicules on outer part, or feathery due to an outer and an inner row of very dense longish scales; larger forms, about 14–15 mm. long.
  - (b) Wings (pl. i, fig. 2) with less extensive blackish brown infuscation occupying the base, costal cell, in form of a broadish fascia across base of third vein to base of fourth posterior cell, a broadish infusion just beyond middle from costal cell to discoidal cell and extending towards hind border as infusions along veins separating the latter cell from posterior cells and also along veins of third posterior cell to hind border and also with a large spot at base of second submarginal cell, another at base of third posterior cell and a small one at apex of anal cell; greater part of axillary lobe and anal cell and apical part of wings hyaline; vein between submarginal cells normally sinuous and without a stump at its posterior bend; second vein originating more obliquely at a distance equal to length of middle cross vein before the latter and without a distinct stump at its bend; antennae relatively close together, about length of joint 1; joint 2 subglobular or barrel-shaped, not much broader than long; bulbular part of joint 3 bulb- or onion-shaped, its basal margin not prominently rim-like; hairs on head, thorax and sides of abdomen distinctly less dense; white scaling on abdomen above

- 4. (a) Tarsi very much shorter than tibiae; antennae much nearer together, space between them only about twice length of joint 1; terminal joint of joint 3 very much less than half length of slender part; infuscation in marginal cell not continuous apically, but leaving a clear subapical area; infuscation at apex of second vein usually in form of two large confluent spots; end of second vein much more deeply looped; first posterior cell usually without or with only a small or indistinct clear spot at base; vein between discoidal and third posterior cells angularly bent hindwards and usually with a small stump at the bend; vein between submarginal cells more sinuous; hair on face, in collar, sides of thorax, pleurae and coxae with more pale ones intermixed; hair-like scaling on sides of thorax above pale; dark scaling on abdomen above more black and hair-like and the more slender white, flattened scales across hind margins on sides of tergites 2-4 longer, cuneiform and duller white; dense silvery scaling at apex of abdomen on last two tergites in ♂ transverse and elongate, that in ♀ longer and cuneiform; scaling on legs paler and that on hind tibiae not very dense and conspicuous.
  - (b) Tarsi long, subequal in length to tibiae; antennae more widely separated, space between them quite three times length of joint 1; terminal joint of joint 3 longer, almost or about half length of slender part; infuscation in marginal cell of wings (pl. i, fig. 1) continuous apically, leaving only a small clear preapical area; infuscation at apex of second vein in form of a small spot; end of second vein only slightly recurved; first posterior cell with a large clear spot at base; vein between discoidal and third posterior cells only sinuous and without a stump; vein between submarginal cells only broadly V-shaped; hair on face, in collar, sides of thorax, pleurae and coxae entirely dark or black or with much fewer pale ones; hair-like scaling on sides of thorax above dark; dark scaling on abdomen above gleaming more purplish black and more lanceolate and the shorter, white, flattened ones across hind margins of tergites 1-4 laterally shorter, broader and gleaming silvery; dense silvery scales on last three segments in 3 less transverse and very much shorter and that on sides of tergite 6 in Q also shorter; scaling on legs darker, that on hind tibiae characteristically dense and conspicuous.
- 5. (a) Wings darkly infuscated brownish or chocolate brownish throughout, the basal and costal parts scarcely or only very slightly darker and usually with spot-like infuscations on all the cross veins.
- 6. (a) Smaller form, about 5-6 mm. long, with a wing-length of about 6½ mm.; hair predominantly blackish brown above, more whitish or greyish white below, with greyish white or whitish hairs intermixed on face and whitish or yellowish white ones on sides of tergite 1; abdomen without any flattened, gleaming or silvery white scaling; axillary lobe narrower, more parallel-sided, not much broader than anal cell; squamae whitish, white-fringed; plumula also whitish; halteres predominantly pale, their knobs mainly pale; antennal joint 2 less flattened, only about half as long as broad; apices of femora, the tibiae and tarsi paler yellowish; hind femora with fewer spines and tibiae with fewer spicules; posterior apical angles of last sternite in ♂ not produced spine-like; apical part of clasper-like basal parts of hypopygium of ♂ not produced and their beaked apical joints wrench-shaped.
  - (b) Larger form, about 11½-15½ mm. long, with a wing-length of about 13½-17 mm.; hair entirely black above and below, that on face also black or dark blackish brown and with dark or black ones on sides of tergite 1; hind margins of tergites on sides and, in 3 especially, on sides of last two with flattened, silvery, white scaling; axillary lobe

distinctly much broader, broadly rounded and much broader than anal cell; squamae brownish, dark-fringed; plumula black; halteres dark brownish, only apical margin of the knobs pale or whitish; antennal joint 2 lens-shaped, more flattened and very much more than half as broad as long; apices of femora, the tibiae and tarsi darker, more castaneous or reddish brownish; middle and hind femora with more numerous spines and tibiae, especially on outer apical part of hind ones, with distinctly more numerous and denser spicules; apical angles of last sternite in  $\Im$  produced spine-like; apical part of clasper-like basal parts of hypopygium in  $\Im$  produced blade-like and the beaked apical joints not wrench-shaped. . . .  $\Im \Leftrightarrow badius$  n. sp. (p. 394)

- - (b) Wings either predominantly hyaline or for the greater part hyaline, with only the base, costal cell and to a variable extent the first and second basal cells tinged yellowish brownish or brownish, or with only spots on cross veins in this region, but with the anal and axillary cells entirely hyaline.
- 8. (a) Basal and anterior infuscation in wings distinctly extending continuously or uninterruptedly, even if only diffusely, for some distance or much beyond level of middle cross vein in either the marginal cell (to at least halfway between middle cross vein and base of cubital fork) or in both marginal and first submarginal cells or even into first posterior cell, thus occupying a more extensive area, encroaching on or even enveloping spots on cross veins and leaving a distinctly less extensive hyaline apical and posterior part.
  - (b) Basal and anterior infuscation or infusion either not extending much beyond level of base of discoidal cell in which case a clear gap of variable extent between it and the infusion on middle cross vein (discal spot) or on middle cross vein and the basal parts of cells beyond it is evident, or infuscation extends continuously only for a very short distance beyond level of middle cross vein into marginal and first submarginal cells, less than halfway between middle cross vein and cubital fork, even though infusions or spots are present on cross veins in clearer or hyaline apical and hinder part.
- g. (a) Wings uniformly and diffusely dark reddish brownish, brownish or chocolate-brownish in basal and costal parts, the infuscation imperceptibly passing into the less tinged or more greyish apical and hinder part, there being no clear spots in anterior darker part and the spot-like infusions on cross veins indistinct or faint; middle cross vein distinctly much before middle of discoidal cell; antennae with joint 2 subglobular or sub-barrel-shaped and bulbular part of 3 not flattened or discoidal, more onion- or bulb-shaped, its basal margin not prominently rim-like.
  - (b) Wings with the infuscation or pattern more sharply defined from clearer or hyaline apical and hinder part, sometimes with clearer or more translucent areas or spots in anterior infuscated part, with the spots on cross veins, if present, usually more conspicuous and well defined; middle cross vein usually at about or at least nearer middle of discoidal cell; antennae with joint 2 usually more flattened, disc-shaped or lenshaped and bulbular part of 3 discoidal, its basal margin more conspicuously and prominently rim-like and, if these antennal characters do not conform, infuscation in wings is at least well marked off.
- 10. (a) Larger form, about 11-11½ mm. long, with a wing-length of about 12-12½ mm.; darker part in wings more chocolate or reddish brownish; middle cross vein at more than basal third of discoidal cell; second vein originating at right angles and provided with a long stump at bend; alula and axillary lobe tending to be broader, the latter much broader than anal cell; third posterior cell very much shorter than discoidal cell; antennae much wider apart, distance between them very much more than length of joint 1; hair in collar and on sides of thorax above with apparently more whitish ones intermixed; femora reddish brownish, tibiae and tarsi yellowish.

. . . . 3 phaeopteralis n. sp. (p. 396)

- (b) Smaller form, about 7 mm. long, with a wing-length of about 7½ mm.; darker part in wings dark blackish brown; middle cross vein at about basal third of discoidal cell; second vein originating slightly obliquely, without a stump; alula and axillary lobe tending to be narrower, the latter about as broad as anal cell; third posterior cell only a little shorter than discoidal cell; antennae closer together, space between them about equal to length of joint 1; hairs in collar and sides of thorax above with fewer pale ones intermixed; femora darker and tibiae brownish. . . . . ♀ furvus n. sp. (p. 398)
- 11. (a) Infuscation in wings more extensive, occupying more or less basal and anterior part, extending obliquely and irregularly apically from near middle or near apex of axillary lobe to or near to base of upper cubital branch and from there across to apical part of costal cell, the area or basal part of first submarginal cell a little in front of base of upper cubital branch less extensively clear, but always more or less more extensively infused; well-defined, conspicuous spots on all the cross veins along hinder border of infuscation; clearer or hyaline apical and hinder parts relatively less extensive.
  - (b) Infuscation less extensive, more confined to costal part, occupying a smaller basal and anterior part, extending obliquely apically from near base or middle of axillary lobe and anal cell straight or jaggedly across to or near apex of costal cell, the area of first submarginal and first posterior cells just in front of base of upper cubital branch more extensively clear or clear like rest of apical and hinder parts; spot at apex of discoidal cell wanting or the spots on cross veins faint or even wanting. . . . . . 27
- 12. (a) Wings normally long and narrower; entire axillary and anal cells not infuscated throughout and, apart from the basal spot, without distinct or extensive infuscation in basal part of fourth posterior cell and the infuscation also not occupying either the entire discoidal cell or greater part of it; discoidal cell longer, with only its lower vein curved or bent outwards and its apex more pointed; middle cross vein even if before middle of discoidal cell is still beyond level of base of third posterior cell; squamae whitish, whitefringed; knobs of halteres pale, whitish or yellowish to a variable extent; hairs on body above and below not entirely dark or black, usually with more numerous white or pale ones among black or dark ones either in collar, on pleurae or on venter to a variable extent; white or pale scaling on abdomen above usually more extensive or arranged on sides across most of the tergites or at least also on 1, 3 and 4 to a variable extent and those posteriorly in 33 not elongate, brilliant silvery and arranged transversely; slender part of antennal join t 3 usually distinctly or much longer than broad base and its terminal joint longer, not very short or minute; tarsi only a little shorter than or subequal to or even longer than tibiae; apical angles of clasper-like basal parts of hypopygium in 33 usually produced prong-like to a variable extent. . . . . . 13
  - (b) Wings (pl. i, fig. 4 (2)) relatively much shorter, very broad; entire axillary and anal cells infuscated dark blackish brown like rest of basal and costal part, the infuscation also extending into basal part of fourth posterior cell (more so in 2) and also occupying entire discoidal cell (\$\varphi\$) or basal half and anterior apical part (\$\delta\$); discoidal cell shortish, broad, dilated apically where both upper and lower veins are curved outwards and its apex more truncate; middle cross vein before middle of discoidal cell and about opposite level of basal bend of third posterior cell; squamae brown, brownishfringed; halteres and their knobs entirely brown; hairs on body above and below mainly black, with much fewer whitish ones intermixed in collar and on pleurae, only tuft at base of abdomen partly conspicuously white; scaling on abdomen black, with only some white scaling on sides across hind margin of tergite 2 and in 3 posteriorly where they are long, very brilliantly silvery and transversely arranged; slender part of antennal joint 3 only about as long as or distinctly shorter than broad globular base, its terminal joint very small, almost vestigial; tarsi much or markedly shorter than tibiae; apical angles of clasper-like basal parts of hypopygium in 3 not produced prong-like. ♂ ♀ eurypterus n. sp. (p. 412)
- 13. (a) Basal and anterior infuscation in wings not sharply or clearly defined from clearer apical and hinder part, the transition more diffuse or hazy and either without a distinct clear area before base of upper cubital branch or beyond middle cross vein in first posterior cell and usually with the basal part or basal half of discoidal cell also more

- infused; spots on cross veins tending to be more diffuse, fainter and less well defined; upper cubital branch tending to be not so deeply bent backward and to be less wavy; terminal joint of antennal joint 3 relatively longer, only a little shorter than or even almost as long as slender part; hairs and bristles on body less developed and those on sides of abdomen relatively sparser, less dense and tuft-like; plumula whitish or pale, not entirely black.
- (b) Basal and anterior infuscation distinctly more sharply defined or delimited from clearer or more hyaline apical and hinder part, extending from middle or beyond middle of axillary lobe more or less irregularly and obliquely across towards apex of costal cell, usually with conspicuous and a more distinct clear area in infused base of first posterior cell beyond middle cross vein and more often also before base of upper cubital branch and with the base or basal half of discoidal cell less extensively infused; spots on cross veins more distinct, more defined or larger; upper cubital branch usually more deeply bent backwards and more markedly wavy; terminal joint of antennal joint 3 much shorter, usually very much shorter than slender part; hairs and bristles on body more conspicuously developed, those on sides of abdomen distinctly denser, more shaggy and tuft-like; plumula dark or black or with more dark hairs.
- 14. (a) Broad base of antennal joint 3 much broader than joint 2, more discoidal; joint 2 distinctly shorter and broader, more flattened saucer-like or lens- or disc-shaped, much more than twice as broad as long; infuscation in wings (pl. i, fig. 3) slightly darker, slightly more sharply delimited from clearer parts and with the spots on cross veins darker, more intense; upper cubital branch not only roundly and fairly deeply bent backwards, but more wavy beyond bend.
  - (b) Broad base of antennal joint 3 smaller, only a little broader than joint 2, more bulb-shaped; joint 2 relatively longer, more bead- or sub-barrel-shaped, only about twice or even less than twice as broad as long; infuscation in wings slightly paler brownish, more diffuse, grading more imperceptibly into the clearer part and with the spots on cross veins fainter, less intense; upper cubital branch, though somewhat subangularly bent backwards, straighter beyond bend.
- - (b) Hairs and scale-like hairs on these parts predominantly whitish or pale; plumula entirely pale or whitish. . . . . var. of ♀ cunctator n. sp. (p. 399)
- 16. (a) Infuscation in wings less extensive, more uniform, without distinct clearer spot-like areas before and beyond middle cross vein, less extensive in anal cell and axillary lobe, not extending beyond middle of former and base of fourth posterior cell not infused; end of second vein less recurved and upper cubital branch less deeply bent backwards; hair on body, especially sides of abdomen, less dense and shorter and those in collar, on humeral tubercle and on mesopleural part with more pale or whitish ones intermixed; space across base of face less bare, with more hairs; scaling on venter pale; terminal joint of antennal joint 3 longer, only a little or scarcely shorter than slender part; femora paler, more sienna-brownish and tibiae paler yellowish; front femora with feebler, shorter and sparser or scarcely any hairs below; spines on femora and spicules on tibiae less developed, fewer and sparser; smaller forms, about 5½-7 mm. long, with a wing-length of about 6-7½ mm.
  - (b) Infuscation in wings more extensive and in basal part occupying most of anal and axillary cells to much beyond middle cross vein and even extending into base of fourth posterior cell, not so uniform, with clearer or less-tinged areas just before and just beyond middle cross vein; end of second vein distinctly more recurved and upper cubital branch more subangularly bent backwards; hair on body, especially sides of abdomen, distinctly denser and longer and with much fewer whitish ones intermixed in collar, on humerus and mesopleural parts; space across base of face bare, without any hairs; scaling on venter as well as that on abdomen above (excepting only white ones) mainly dark or black; terminal joint of antennal joint 3 shorter, distinctly much shorter than slender part; femora darker or black and tibiae more reddish brownish;

front femora (in  $\delta$  at least) with longer and denser fine hairs below; spines on femora and spicules on tibiae distinctly more developed and more numerous; larger form, more than 7 mm. long and with a wing-length of more than  $7\frac{1}{2}$  mm.

. . . . & namaënsis n. sp. (p. 401)

17. (a) Infusion in wings not present in greater part of axillary lobe or in at least apical half of anal cell; middle cross vein distinctly a little beyond middle of discoidal cell; second vein originating distinctly a little before middle cross vein at about or a little less than length of latter; hairs on propleurae, prosternal part and coxae and hair-like scaling on pleurae entirely or mainly brownish or chocolate-brownish; bands of white scaling across hind margins of tergites 2 and 3 very broadly interrupted discally.

. . . . ♂♀ munroi n. sp. (p. 399)

(b) Infusion occupying also greater part of axillary and anal cells; middle cross vein at about middle of discoidal cell; second vein originating opposite or very near middle cross vein; hairs and hair-like scales on these parts predominantly pale or with more numerous pale ones; bands of white scales across hind margins of tergites 2 and 3 scarcely or only narrowly interrupted discally.

. . . . . . . . . . . . . munroi var. willowmorensis n. (p. 401)

- 18. (a) Infuscation in wings slightly more diffuse and extensive, either occupying the basal and anterior part from slightly beyond middle of axillary lobe along lower vein of discoidal cell to basal cross vein of second posterior cell and across first posterior cell, base of upper cubital branch (rarely not coalescing with the latter) to apex of costal cell, the entire discoidal cell thus more or less infused, or infusion occupies basal and anterior two-thirds from apex of anal cell arcuately across fourth and third posterior cells, basal vein of second posterior cell and base of upper cubital branch to near apex of costal cell; spots on cross veins in these forms thus lying along or on hinder margin of infuscation.
  - (b) Infuscation in wings less extensive, occupying basal and anterior parts from about middle of axillary lobe (rarely from near apex) irregularly and obliquely across base of fourth posterior cell, middle cross vein, sub-basal part of first posterior cell towards apex of costal cell, the greater part or apical half of discoidal cell and area in front of basal spot on upper cubital branch being always clear or hyaline and the clear spot-like area at base of first posterior cell larger and more conspicuous; spots, or at least most of them, on cross veins in middle of wings separated from border of infuscation.
- 19. (a) Wings without any spot on lower vein of discoidal cell and the three spots on cross veins along hind border of infuscation slightly larger or more distinct; clear spot at base of first posterior cell more distinct or large and conspicuous; hair in propleural tuft, on mesosternal part, anterior coxae and venter with more black ones or entirely dark or black.
  - (b) Wings with a distinct spot on lower vein of discoidal cell and with the three other spots on cross veins along hind border of infuscation slightly smaller; clear spot at base of first posterior cell small, indistinct, or only indicated; hair on humeral part, in propleural tuft, on prosternal part and venter with more white ones or entirely whitish.

    ∴ ∴ ∴ ♀ aridicolus n. sp. (p. 403)
- 20. (a) Infuscation in wings (pl. i, fig. 5) appearing slightly more extensive, extending to base of upper cubital branch, thus enclosing spot on this vein and without any clear spot in front of this spot; discoidal cell also infused for the greater part; middle cross vein much before middle of discoidal cell; tuft above front coxae and on prosternal part composed of both dark and white hairs, the latter more numerous; hair-like scaling on pleurae pale; femora darker and tibiae yellowish brownish.
  - (b) Infuscation in wings (cf. pl. i, fig. 7) less extensive, either not reaching spot at base of upper cubital branch or leaving a distinct clear gap or area in front of this spot; hinder or apical part of discoidal cell tending to be clear and with a small round clear area in its basal part in front of base of third posterior cell; middle cross vein much nearer middle or at middle of discoidal cell; tuft above front coxae and hairs on front coxae

		and all hairs and scales on pleurae dark brownish to mauvish brown; femora dark reddish brown or piceous reddish and tibiae more yellowish reddish.  & diffusus f. fuscopurpuratus n. (p. 408)
21.	(a)	White scaling across hind margins on sides of tergites usually extending right round to ventral part in between black tufts; propleurae, pleurae, prosternal part, front coxae and extreme sides of tergites below usually with distinctly more pale hairs and hair-like scales; scaling on venter mainly whitish; hind margins of sternites and in 33 sometimes those of posterior tergites more broadly and more conspicuously yellowish or yellowish brownish; cross veins in hyaline part of wings with 3 or 4 constant spots, one at base of third posterior cell, one either present or absent at bend on lower vein of discoidal cell, one at apex of latter and one at base of upper cubital branch.
	(b)	White scaling across hind margins on sides of tergites not or scarcely extending right round to ventral part; propleurae, pleurae and other parts mentioned above with entirely or mainly dark or black or usually with fewer pale hairs and hair-like scales and, if with much pale hair, other characters at least conform; scaling on venter usually darker and, if pale, propleural parts with more dark hairs; hind margins of sternites and posterior tergites not or only very narrowly or obscurely yellowish or yellowish brownish; cross veins in hyaline part with only 3 constant and distinct spots, the one on lower vein of discoidal cell not normally or constantly present.
22.	(a)	Hair on propleurae, prosternal part and front coxae with more dark or black ones intermixed, without some reddish golden ones on front coxae; hairs on venter predominantly black or very dark or only with pale tips; cross veins in hyaline part of wings more constantly with 4 spots.
	(b)	Hair on these parts entirely or mainly whitish or pale or with more numerous pale ones, usually with some reddish golden ones on front coxae; hairs on venter gleaming reddish golden in certain lights; cross veins in hyaline part of wings (cf. pl. i, fig. 7) more constantly with only 3 spots $3 \Leftrightarrow diffusus$ f. pallidulus n. (p. 406)
23.	(a)	Hairs on venter dark or black; pale scaling on abdomen above, other than white ones, duller, more greyish whitish or straw-coloured; wings (pl. i, fig. 6) more constantly with 4 spots on cross veins in hyaline part; hind margins of sternites and in 3 of posterior tergites more broadly yellowish or yellowish brownish.
	(b)	Hairs on venter paler, usually pale-tipped; pale scaling on abdomen above, other than white ones, more ochreous yellowish or orange yellowish; wings sometimes with spot on lower vein of discoidal cell indistinct or wanting; hind margins of sternites and those of posterior tergites in 3 not or scarcely yellowish.
24.	(a)	Infuscation in wings also occupying greater part or basal two-thirds or at least basal half of discoidal cell and sometimes also basal part of fourth posterior cell; spot at base of third posterior cell confluent with main infuscation; legs darker.
	(b)	Infuscation extending only from about or a little beyond middle of axillary lobe obliquely across base of fourth posterior cell to a little distance in front of base of upper cubital branch in first posterior cell and then more or less straight across to near apex of costal cell, clouding only base of discoidal cell, the latter thus almost entirely hyaline or clear; spot at base of third posterior cell isolated; legs usually paler, the apical and lower parts of femora at least pale reddish brownish.
25.	(a)	Infuscation in wings (cf. pl. i, fig. 7) extending from about middle or only a little beyond middle of axillary lobe obliquely across to apex of costal cell, the basal and upper parts or even greater part of discoidal cell included; spot at apex of discoidal cell confluent with main infuscation; lower vein of discoidal cell without a spot; hair in

collar, on humerus and propleural part mainly dark mauvish brownish, with distinctly much fewer pale ones; antennae less widely apart, space between them less than twice

- length of joint 1; smaller form, about 7-8 mm. long, with a wing-length of about 9 mm.

  3 diffusus f. fuscopurpuratus n. (p. 408)
- 26. (a) Infuscation in wings (pl. i, fig. 7) sharply delimited from hyaline part and darker; spots on cross veins conspicuous and sharply defined; upper cubital branch distinctly more sinuous; propleurae, prosternal part and venter with darker or mainly black hair or with much black hair intermixed; white scaling across hind margins of tergites 2 and 3 only on sides or very broadly interrupted discally; venter without pale scaling; integument of body darker; terminal joint of antennal joint 3 relatively shorter; femora darker, more blackish or piceous brown and with more numerous spines below; larger form, about  $7\frac{1}{2}-11\frac{1}{2}$  mm. long, with a wing-length of about  $9-13\frac{1}{2}$  mm.

. . . . ♂ ♀ diffusus Wied. (p. 404)

(b) Infuscation in wings more diffuse, grading into clearer part; spots fainter and less conspicuous; upper cubital branch tending to be less sinuous; propleurae, prosternal part and venter with more chocolate brownish hair; white scaling across hind margins of tergites 2 and 3 in ♂ at least more narrowly interrupted discally; venter with much pale scaling; integument paler brownish; terminal joint of antennal joint 3 relatively longer; legs paler, sienna-brownish and with fewer spines below; much smaller form, about 4½ 6 mm. long, with a wing-length of only about 5-7½ mm.

. . . .  $3 \circ diffusus$  f. suffusipennis n. (p. 407)

- 27. (a) Antennal joint 2 flattened, lens-shaped or disc-shaped or at least much broader than long; broad base of joint 3 more discoidal, its basal margin projecting rim-like; infuscation in wings extending from about middle or just before middle of axillary lobe across middle of anal cell, base of fourth posterior cell and obliquely across large spot on middle cross vein towards apex of costal cell; basal part of first submarginal cell not or less extensively infuscated, its infusion falling far short of that in marginal cell; spot-like infuscations present on basal cross veins of third posterior and second submarginal cells and sometimes also at apex of discoidal cell; second vein originating at right angles opposite or almost opposite middle cross vein and with a distinct longish stump at bend; upper cubital branch distinctly more sinuous, more deeply bent backwards and more often with a stump at base; hair on propleurae and prosternal part and hair-like scales on pleurae and to a certain extent also scaling on sides of thorax above mainly dull greyish yellowish or straw-coloured yellowish or with more dark hairs on pleurae; scaling on abdomen above, other than white ones, more often predominantly yellowish or dull ochreous yellowish; long hairs on sides of abdomen less dense or shaggy and without white ones intermixed; hypopygium of 33 with an apical prong or process to the clasper-like basal parts.
  - (b) Antennal joint 2 longer, subglobular or bairel-shaped; broad base of joint 3 more bulb-like or onion-shaped; dark blackish brown infuscation in wings (pl. i, fig. 17) extending from base of axillary lobe across basal part of anal cell, then zigzag obliquely across basal cross vein of fourth posterior cell, middle cross vein and then to midway between the latter and cubital fork and from there across to costal cell; basal part of first submarginal cell more extensively infuscated, its infusion extending to about level of that in marginal cell; cross veins in hyaline part without any distinct spots; second vein originating obtusely a little before middle cross vein, without a distinct or longish stump; upper cubital branch distinctly less sinuous, not deeply bent backwards; hair on propleural and prosternal parts and hair-like scales on pleurae and scaling on sides of thorax above mainly whitish or greyish or with more whitish ones; scaling on abdomen above, other than white ones, darker, more blackish or with more black ones; long hairs on sides of abdomen denser and shaggy and with white ones or whitish tufts

especially on sides of tergite 2 and below the black ones on sides; hypopygium of 3 with the apical part of clasper-like basal parts not produced.

. . . .  $3 \circ trisinuatus n. sp. (p. 449)$ 

- 28. (a) Infusion in wings extending almost straight and obliquely across from before or just before middle of axillary lobe to a point either much nearer end of costal cell or nearly opposite level of base of upper cubital branch; a distinct or conspicuous clear area, spot or indentation just before spot on middle cross vein not present or scarcely indicated; cross veins in hyaline part with only 1 or 2 constant, more diffuse, spot-like infuscations or indications, on either base of third posterior cell or on base of latter and that of upper cubital branch; broadened base of antennal joint 3 smaller and less enlarged, its slender stylar part much longer than base; scaling on abdomen above with less extensive dark ones and the white ones longer, less fan-shaped.
  - (b) Infusion in wings extending more irregularly or jaggedly across from before or at about or even slightly beyond middle of axillary lobe to a point on costal cell much farther away from end of latter or much before level of cubital fork; a clear area, indentation or gap just before large spot on middle cross vein distinctly evident or conspicuous, sometimes even extending across to second vein, resulting in the large discal spot being conspicuously hook-like or peninsula-like; cross veins in hyaline part with either 1, 2 or 3 more rounded or more conspicuous spots; broad base of antennal joint 3 larger or more conspicuously enlarged, its slender part relatively shorter, subequal in length to or even shorter than broad base; scaling on abdomen above with more extensive dark ones and the white ones distinctly shorter, broadish and more fan-shaped.
- - (b) Infuscation extending from before middle of anal and axillary cells apically to a point near end of costal cell which falls far short of level of cubital fork, absent or scarcely evident in basal part of first submarginal cell and its apex in marginal cell more truncate; spot-like infusion at base of third posterior cell fainter or scarcely evident and that at base of second submarginal cell absent; base of latter not or less bent at right angles and without a stump; antennae in ♂ at least distinctly much closer together, space between them scarcely or only a little broader than length of joint 1; joint 2 slightly longer, distinctly less lens-shaped; slender part of joint 3 relatively longer, its terminal joint, especially in ♂, much shorter, very much shorter than slender part; white scaling on abdomen posteriorly duller whitish; hairs and scales on pleurae with more whitish ones.
- 30. (a) Wings (pl. i, fig. 9) with 2 or 3 spots in hyaline part, one at base of third posterior cell, one at base of upper cubital branch and sometimes also one at apex of discoidal cell; infuscated part without distinct and constant small yellowish or whitish spots in basal part of costal cell, at base of marginal cell and at same level in first basal cell; margin of infuscation appearing irregular, not markedly jagged; discal spot more rounded; infuscation at base of discoidal cell tending to be less extensive and more diffuse; first posterior cell more narrowed apically; sides of frons anteriorly, sides of face and below antennae without any conspicuous silvery pruinescence; hair on abdomen above and sides slightly longer and denser and that on basal part or half of venter pale or whitish; antennal joint 3 with the base normally discoidal or bulb-like, the slender part much longer than base and its terminal joint not very short or minute; prongs of hypopygium of ♂ more slender and longer. . . . ♂ ♀ caffer n. sp. (p. 416)

- 31. (a) Anterior and basal infuscation in wings uniformly and diffusely reddish brownish or chocolate-brownish, this infuscation not sharply delimited, but imperceptibly passing into less-tinged or more smoky greyish part; spot-like infusions on cross veins in less infuscated part indistinct or faint; middle cross vein distinctly very much before middle of discoidal cell; antennal joint 2 subglobular or sub-barrel-shaped; bulbular part of joint 3 more bulb-like, not flattened or discoidal, its basal margin not prominently rim-like; hairs on pleurae, coxae and venter mainly dark chocolate-brownish; legs reddish brownish.
  - (b) Anterior and basal infuscation in wings more sharply delimited and, if tending to be diffuse, conspicuous spots are present and following characters also evident; spot-like infusions, on cross veins, if present, more conspicuous; middle cross vein at about or at least nearer or even slightly beyond middle of discoidal cell and, if much before middle, other characters at least conform; antennal joint 2 usually more flattened, lens- or disc-shaped; bulbular part of joint 3 more flattened or discoidal, its basal margin more conspicuously rim-like; hairs on pleurae and body below not dark chocolate, more black or with much pale hair and, if dark, the other characters conform; legs with the femora usually much darker or black.
- 32. (a) Basal wing-pattern sharply and dimidiately delimited, uniformly dark blackish brown, extending from apex or near apex of axillary lobe obliquely across at least the basal third of fourth posterior cell, across nearly the basal half of discoidal cell, middle cross vein to costal cell, its margin irregularly straight, without a distinct or conspicuous clear indentation or gap in front of discal spot on middle cross vein region, the latter spot not projecting conspicuously hook-like or peninsula-like; cross veins in hyaline part without any spots or spot-like infusions.
  - (b) Basal wing-pattern less sharply or dimidiately defined and, if sharply or dimidiately delimited, extending obliquely across from about middle or from some distance away from apex of axillary lobe across extreme base of fourth posterior cell and only basal third or much less of discoidal cell, across middle cross vein to costal cell, its margin more irregular or jagged, missing basal cross vein of third posterior cell and always with a distinct, often very deep, clear indentation or gap (sometimes even extending right across to second or even first main veins), in front of discal spot, the latter spot thus either projecting conspicuously hook-like or peninsula-like or sometimes even isolated; some cross veins in hyaline part usually with spots or indications of spots.
- 33. (a) Antennae slightly nearer together, scarcely or not quite twice length of joint 1; joint 2 shorter, about twice as broad as long; base of joint 3 less flattened, bulb-like, its slender part thicker and tapering, its terminal joint very short, minute; interocular space in front of ocellar tubercle in ♀ only about 3 times width of latter; greater part of tuft on sides of tergite 1 white, only some hairs in hinder part black; bristly hairs on last sternite short, not dense and tuft-like; white scales on last two tergites finer and those across hind margin of tergite 6 narrower and more slender.
  - (b) Antennae slightly farther apart, quite twice length of joint 1; joint 2 relatively longer, less than twice as broad as long; base of 3 distinctly more flattened and discoidal, its

slender part more slender, not markedly tapering, its terminal joint distinctly longer, only a little less than half length of slender part; interocular space in  $\mathcal{P}$  about  $\mathcal{P}$  to  $\mathcal{P}$  times width of tubercle; tuft on sides of tergite 1 with only the upper half white, the lower half black; bristly hairs on last sternite longer, denser and tuft-like; white scales on last two tergites relatively broader, those across hind margin of 6 on sides distinctly broader and cuneiform.  $\mathcal{P}$  mimetes n. sp. (p. 424)

- 34. (a) Infuscation in wings, excluding infuscated costal cell, always continuous in marginal cell along costal part from base to where it ends apically; clearer or hyaline indentation or gap in front of infusion on middle cross vein not reaching costal cell and not cutting off or isolating the large discal spot, the latter thus projecting hook-like and pattern thus in form of a basal and anterior infuscation which is joined on to discal spot; cross veins in hyaline part either without any or with never more than 3 spots.
  - (b) Infuscation in wings, apart from the costal cell, not continuous along costal part in marginal cell from base to where it ends apically; clearer or hyaline indentation or gap in front on infusion on middle cross vein extending right across and reaching costal cell (or sometimes extending more or less to middle of basal part of marginal cell) and so completely or almost entirely cutting off and isolating the large discal spot, the latter thus forming an isolated medial spot and pattern thus in form of a basal infuscation up to level of apex of second basal cell and 1 to 4 (or even 5) spots in hyaline part.
- 35. (a) Larger forms, about 8-13 mm. long, with a wing-length of about 10-14½ mm.; hair on body distinctly very much denser, longer, more shaggy, that on sides of abdomen conspicuously dense, long and shaggy; tuft on sides of tergite 1 with much denser and more numerous black hairs in addition to white or pale ones and those on sides below being also mainly black or dark; scaling on venter mainly or entirely black and that on abdomen above, other than white ones, also mainly dark; spines on femora and spicules on tibiae distinctly more numerous, denser, more strongly developed and scales on legs also much denser, more strongly developed; upper cubital branch in wings more deeply bent backwards and more sinuous.
  - (b) Smaller forms, usually less than 9 mm. long, with a wing-length of less than 10 mm.; hair on body distinctly less dense, relatively shorter and less shaggy, that on sides of abdomen, though sometimes appearing dense, distinctly less dense in comparison, shorter and less shaggy; tuft on sides of tergite 1 mainly white or with fewer black hairs and then only across hind margin; scaling on venter not entirely dark, with much pale or whitish scaling on abdomen above apart from white ones across hind margins and with some or much pale or yellowish ones in addition to black ones; spines and spicules on legs less strongly developed, less numerous and sparser and the scales also shorter; upper cubital branch usually less deeply bent backwards and less wavy and, if very sinuous, other characters do not differ.
- 36. (a) Dark blackish brown infuscation in wings more uniform, more extensive and more distinctly dimidiate, occupying almost the basal half of wings, extending from near or very near apex of axillary lobe obliquely across towards apical part of costal cell, including greater part of axillary and anal cells, basal part of fourth posterior cell and at least basal third of discoidal cell, its margin almost straight, except for hook-like infuscation on middle cross vein; clear gap before hook-like discal spot less extensive, shorter, not extending across into marginal or costal cell; cross veins in hyaline part with only two equally conspicuous spots, on basal cross veins of third posterior and second submarginal cells respectively; tergite 3 without any or with much fewer white scales on sides; apical prongs of 3-hypopygium very long and narrow.
  - (b) Dark blackish brown infuscation in wings less uniform, less extensive and less dimidiate, more broken up along hind border, extending from about middle of axillary and anal cells obliquely across, including only about or a little more than half of axillary and anal cells and not the basal part of fourth posterior cell (excluding spot), less than basal third of discoidal cell, the hind margin of this iniuscation much broken up by a clear

indentation in anal cell and another before large discal spot on middle cross vein; clear gap before latter distinctly more extensive, longer, extending across, sometimes broadly so, into marginal cell or even to costal cell, sometimes even isolating discal spot; cross veins in hyaline part with at least 3 spots, on basal cross veins of third and second posterior cells and at base of second submarginal cell; tergite 3 usually with a conspicuous patch of white scales across hind margin on sides and sometimes even with some across discal part; apical prongs of hypopygium very much shorter and blunter.

. . . .  $\delta \updownarrow bifarius$  n. sp. (p. 429)

- 37. (a) Infuscation in wings in form of a more uniform brownish or dark blackish brown infusion in anterior basal part, extending from before or about middle or even a little beyond middle of axillary lobe obliquely across to costal cell just a little beyond infusion on middle cross vein which is apparent as a conspicuous hook-like projection; cross veins in hyaline part without any or with 2 or 3 darker spots; upper cubital branch usually more deeply or sharply bent backwards and distinctly more wavy; pale scaling, if present on head, thorax above and abdomen above, other than white ones on latter, more greyish whitish or dull yellowish greyish; white scaling on abdomen posteriorly more conspicuously developed in both sexes.
- 38. (a) Infuscation in wings extending apicalwards in marginal cell to almost level of apex of false vein in costal cell and for a distance beyond discal spot which is about or nearly half distance between the latter and cubital fork.
  - (b) Infuscation in wings extending apicalwards in marginal cell to a point falling far short of level of apex of false vein and scarcely beyond or for only a very short distance beyond discal spot which is considerably shorter than halfway between the latter spot and cubital fork.
- 39. (a) Wings (pl. i, fig. 9) with 2 or 3 spots in hyaline part, at base of third posterior cell, base of upper cubital branch and sometimes also at apex of discoidal cell respectively; the infuscation without distinct small yellowish white spots basally; its margin less jagged; discal spot more rounded; first posterior cell more narrowed apically; sides of from anteriorly and sides of face without any conspicuous silvery pruinescence; hairs on body above and on sides of abdomen relatively longer and denser.
  - (b) Wings with only I spot in hyaline part at base of third posterior cell; the infuscation with 4 distinct subopaquely yellowish whitish spots: in basal part of costal cell, at base of marginal cell, at about same level in first basal cell and in apical part of second basal cell respectively; margin of infuscation appearing more jagged; discal spot conspicuously more quadrate or subquadrate; first posterior cell usually less narrowed apically and more parallel-sided; sides of frons anteriorly and sides of face distinctly more conspicuously silvery pruinescent; hairs on body above, especially sides of abdomen, relatively shorter and less dense.

. . . . 3 2 sticticalis n. sp. (p. 421)

40. (a) Discal spot or patch in wings small or smaller, more rounded or oblong, projecting peninsula-like; spot at base of upper cubital branch usually absent but if present it is very indistinct and there are no other spots in hyaline part; clear gap or indentation before discal spot smaller and shorter and, if broad and broadly extending across to

costal cell, base of upper cubital branch without a spot or only a small one; middle cross vein tending to be at about or slightly before middle of discoidal cell.

- (b) Discal spot in wings (pl. i, fig. 10) very large and triangular; spot at base of upper cubital branch usually conspicuously large, even larger than the other two distinct spots on cross veins in hyaline part (at base of third posterior cell and apex of discoidal cell respectively); clear gap before large discal spot larger or broader, more extensive, often extending broadly across to costal cell; middle cross vein tending to be very slightly beyond middle of discoidal cell. . . . . ♂♀ triatomus n. sp. (p. 418)
- - (b) Scaling on abdomen above, other than white ones, not entirely black, but also with much yellowish, ochreous yellowish or brownish ones; white scales on abdomen, especially posteriorly, more pearly or even silvery whitish; infuscation in axillary lobe less extensive, tending to be confined to anterior basal part only and that in anal cell tending to be less extensive, extending only to just before middle or scarcely beyond.
- 42. (a) Basal cross veins of third posterior and second submarginal cells with distinct faint indications of spots or spot-like cloudiness or even with a distinct small spot on former; hairs on sides of tergite 1 entirely pale, without any or with much fewer dark or black ones on sides across hind margin; hairs at base of venter pale or with numerous pale ones; interocular space in 33 at narrowest part in front of ocellar tubercle broader, about 2½ to 3 times width of tubercle.
  - (b) Basal cross veins of third posterior and second submarginal cells without any spots or cloudiness; hairs on sides of tergite 1 whitish, but with more numerous black ones across hind margin; hairs on entire venter dark or black; interocular space in front of ocellar tubercle in ♂ narrower, only about 2½ times width of tubercle.
    - 5 mm, long, with a wing-length of about 5-5 mm.: basal cross
- 43. (a) Smaller form, about 5 mm. long, with a wing-length of about 5-5½ mm.; basal cross vein of third posterior cell with a more distinct spot-like infuscation which is more distinct than that at base of second submarginal cell; infuscation in wings not extending beyond discal spot in marginal cell or only for a very short distance, much shorter than length of discal spot; upper cubital branch less sinuous; slender part of antennal joint 3 very much shorter, scarcely or only a little longer than broad base, its terminal joint about half or a little more than half length of slender part; hairs on sides of tergite 1 sometimes with some black ones posteriorly; hairs on extreme sides of tergites below black; hind margins of tergites and sternites not or scarcely reddish even posteriorly; prongs of 3-hypopygium narrower, more slender.

  - of both third posterior and second submarginal cells with more or less equally developed faint cloudiness; infuscation in wings extending beyond discal spot in marginal cell to a point about as far from spot as length of spot; upper cubital branch slightly more distinctly wavy; slender part of antennal joint 3 distinctly longer, nearly twice length of broad base, its terminal joint about half or less than half length of slender part; hairs on sides of tergite 1 entirely pale, those across hinder part sometimes more yellowish; hairs on extreme sides of tergites below tinted yellowish or fulvous; hind margins of tergites and sternites, especially posteriorly, more distinctly reddish; prongs of hypopygium broader and flatter.
  - . . . d doliops n. sp. var. fulviventris n. (p. 439)
- 44. (a) Infuscation in wings (pl. i, fig. 14) extending in marginal cell for some distance beyond discal spot to at least length of latter where it ends abruptly or is truncated; first basal cell without any distinct or with a much fainter subopaquely whitish spot or streak near base; clear gap before discal spot or hook on the whole less extensive, narrower

and more often shorter; hair on pleural parts, coxae and on greater part of venter dark or with fewer whitish ones; body above, apart from the usual white scales on thorax and transverse white ones on abdomen above, with fewer pale, yellowish or whitish ones.

- (b) Infuscation in wings not extending in marginal cell beyond discal spot and, if (in ♀) extending a little beyond, this extension is shorter than length of discal spot; first basal cell with a distinct and conspicuous subopaquely whitish streak near base; clear gap before discal spot more extensive, broader and extending broadly into marginal cell; hair on pleurae, coxae and greater part of venter on the whole much paler, with more pale or whitish ones, especially on venter; body above with distinctly more pale scaling or even whitish ones in addition to yellowish ones, dark ones and the usual white ones on abdomen.
- 45. (a) Extension of wing-infuscation beyond discal spot in marginal cell at least as long as discal spot which itself is distinctly broader; sides of tergite 4 without or with less extensive white scaling; apical prongs of 3-hypopygium broader and more flattened.
  - (b) Extension of infuscation beyond discal spot in marginal cell slightly shorter than length of spot which itself is narrower; sides of tergite 4 with slightly more extensive white scaling; apical prongs of hypopygium distinctly narrower, less flattened, more rod-like and curving inwards.

    3 leucurus n. sp. (p. 439)
- - (b) Cross veins in hyaline part without any or with 1, 2 or 3 faint or smallish spots or spotlike cloudiness in addition to basal and anterior infuscation and the large well-defined discal spot or infusion on middle cross vein, the wings thus appearing less spotted.
- 47. (a) Hairs and bristly hairs on body distinctly very much denser, longer, more shaggy in appearance and those on sides of abdomen markedly dense, longer and tufty; scaling on body, especially abdomen above and excluding white ones, distinctly longer, more hair-like or woolly in appearance; plumula dark; upper cubital branch in wings markedly and characteristically sinuous, deeply bent backwards, then bent fairly deeply forwards and then gradually curved to apex; spines on femora and spicules on tibiae more strongly developed, distinctly more numerous and denser; larger forms, about 9–13 mm. long, with a wing-length of about 10–14 mm. . . . . . . 48
  - (b) Hairs and bristly hairs on body relatively and distinctly less dense, shorter, sparser and less conspicuously dense and tufty on sides of abdomen; scaling on body and abdomen, other than white ones, distinctly shorter or finer hair-like, not woolly in appearance; plumula usually pale or white, rarely dark and, if so, other characters do not differ; upper cubital branch distinctly less sinuous in its course, less deeply bent backwards and more broadly V-shaped; spines on femora and spicules on tibiale less strongly developed, fewer and sparser; smaller forms, usually less than 9 mm. long, with a wing-length of less than 10 mm.
- 48. (a) Infuscation in wings darker, blackish brown to dark blackish brown, more uniform. the clear parts more vitreous or glassy hyaline, with a tendency for large discal spot to be joined on to basal infuscation along marginal cell; cross veins in hyaline part with either 3 or sometimes 4 spots in addition to large discal spot; sides of frons and face narrowly silvery pruinescent or with pruinescent spots along margins of eyes; hair and hair-like scaling on pleurae, propleurae, prosternal part, coxae and venter predominantly very dark or black; hairs in lower hinder part of tuft on sides of tergite 1 black.

  ∴ ∴ ♂ ♀ bifarius n. sp. (p. 429)
  - (b) Infuscation in wings (pl. i, fig. 12) paler, more dull yellowish brownish to brownish, less uniform, more broken up, the middle parts of cells in infuscated part appearing less tinged or more clear, the hyaline parts more greyish, with a tendency for the parts of

marginal, first submarginal and first posterior cells between middle cross vein and cubital fork to be infused or patchily tinged to a variable extent and with the large discal spot separated from basal infuscation by a broad clear area; cross veins in clearer parts with 3 more diffuse or cloudy spots in addition to large discal spot (the wings on account of clear areas in infuscated part and diffuse spots appearing more spotted); sides of frons and face without distinct or conspicuous pruinescent spots; hair and hair-like scaling on pleurae, propleurae, prosternal part, coxae and venter mainly pale, dull straw-coloured yellowish or greyish to deeper yellowish; hairs in both lower and upper parts of tuft on sides of tergite I white, only those across hind part black.

. . . . ♂ ♀ hessii Wied. (p. 427)

- 49. (a) Wing-pattern (pl. i, figs. 10 and 11), other than infuscated costal cell, in form of a more or less sharply delimited basal infuscation, a large medial triangular spot or band on middle cross vein region (of which the broad base is usually continuous with infuscation in costal cell) and either 3 conspicuous dark spots on cross veins in hyaline part of which one at base of upper cubital branch is the largest, or with 2 spots on cross veins and apical infuscations in marginal and first submarginal cells; first basal cell usually without a whitish streak at base; scaling on venter either pale or whitish or if dark with spots or patches of white scales on sides.
  - (b) Wing-pattern (cf. pl. i, fig. 13), other than infuscated costal cell, in form of a slightly more diffused basal infuscation, a smaller medial, more rounded, oblong or subquadrate spot on middle cross vein region which is either free from costal cell or if connected the junction is not so dark as spot itself and with the 3 spots on cross veins in hyaline part either distinctly more diffuse or much smaller and fainter and one at base of upper cubital branch the largest and without any infuscation in apical part of wings; first basal cell usually with a distinct whitish streak or spot at base and, if not, spots in wings at least as described; scaling on venter dark and usually sparse.
- 50. (a) Wings (pl. i, fig. 11) with the infuscated parts black; spot at base of upper cubital branch large and continued apically in marginal cell to border of wing as a curved broadish fascia and in addition to this a large spot is present apically in first submarginal cell; broad triangular infuscation on middle cross vein region sometimes coalescing with spot at base of third posterior cell to form an arcuate band; first basal cell without any distinct whitish streak; hyaline parts of wings glassy clear and very iridescent; discoidal cell tending to be very much narrowed apically; hair on propleurae, prosternal part, pleurae, coxae and venter entirely dark or black; plumula dark; scaling on thorax and especially on abdomen above (excluding normal white ones) entirely or mainly black; scaling on venter also mainly dark excepting only some patches of broadish white scales on sides of sternites.
  - (b) Wings (pl. i, fig. 10) with the infuscated parts dark brownish to blackish brown; spot at base of upper cubital branch isolated and smaller, not continued apically in marginal cell, there being no infuscations in apical parts of latter cell and first submarginal cell; broad triangular spot on middle cross vein not coalescing with spot at base of third posterior cell; first basal cell sometimes with an indication of a subopaquely whitish streak near base; hyaline parts of wings more vitreous and less strikingly iridescent; discoidal cell normally narrowed apically; hair on pleural and lower parts and on venter predominantly pale or with more pale ones intermixed; plumula pale; scaling on thorax above and especially abdomen above, other than white ones, with much dull yellowish, ochreous yellowish and greyish scaling; scaling on venter mainly whitish, the scales narrower or narrow.
- 51. (a) Infuscation in wings in form of a dark brownish costal and basal infusion (the latter extending to level of spot at base of fourth posterior cell and more or less straight across to costal cell), an oblong or subquadrate spot on middle cross vein region reaching costal cell and 3 distinct and conspicuous, equally large spots on cross veins in hyaline part; upper cubital branch slightly less sharply bent backwards; scaling on abdomen above, other than white ones, mainly dark or black, without much or without any yellowish ones; pale scaling across hind margins of tergites, where present, entirely

white; hairs on abdomen above and on sides distinctly longer, relatively denser, especially in  $\mathcal{G}$ ; triangular prongs of hypopygium of  $\mathcal{G}$  slightly shorter.

. . . .  $3 \circ triguttellus n. sp. (p. 431)$ 

- (b) Infuscation in wings with a similar basal and costal infuscation, but slightly more diffuse or sometimes more extensive, less sharply delimited and either with distinctly smaller spots or with more hazy or cloudy ones, or with the basal infusion, extending faintly and diffusely along veins in middle part of wings to a variable extent, thus connecting up with the spots on cross veins and rendering the wings more reticulate or spotted in appearance; upper cubital branch slightly more sharply bent backwards or even more sinuous; scaling on abdomen above, other than usual white ones, with much or even predominant yellowish, ochreous yellowish, golden to reddish orange golden ones; pale scaling across hind margins of tergites where present sometimes with more yellowish ones discally on posterior tergites in 33 and even on sides in some \$\phi \chi\_2\$; triangular prongs of hypopygium relatively slightly longer.
- 52. (a) Infuscation in wings less diffuse, the basal infuscation, large discal spot and smaller spots on cross veins more sharply defined and isolated or separate and without any infusions along veins in middle of wings; hyaline parts of wings more vitreous or glassy; wings less spotted in appearance; upper cubital branch tending to be more sinuous; middle cross vein at about middle of discoidal cell.
  - (b) Infuscation in wings (pl. i, figs. 13 and 15) distinctly more diffuse, the basal infuscation, large discal spot and diffuse or cloudy spots on cross veins less sharply defined; the infusion also extending faintly and diffusely along some of veins in middle of wings, connecting up with the discal spot and the two in middle; wings distinctly more spotted or reticulate in appearance; hyaline parts more greyish or even brownish; upper cubital branch distinctly less sinuous, only broadly V-shaped; middle cross vein slightly beyond middle of discoidal cell.

. . . . 3 = consobrinus n. sp. var. suffusipunctis n. (p. 434)

- 53. (a) Hair on propleurae, prosternal part and coxae and hair-like scales on pleurae predominantly pale or with numerous pale ones intermixed; fine hair-like scaling on thorax above mainly deep golden yellowish; scaling on abdomen above, other than white ones across hind margins, predominantly deep ochreous yellowish; transversely arranged white scaling, especially in 3, apparently less interrupted discally; plumula pale or whitish; first basal cell with a distinct subopaquely whitish streak or spot.
  - (b) Hair and hair-like scales on propleurae, prosternal part, pleurae and coxae entirely or predominantly dark or black; fine hair-like scaling on thorax above composed of deep golden and black ones; scaling on abdomen above, excluding white ones, not mainly pale, but with much black scaling as well; transversely arranged white scales apparently more broadly interrupted discally and white ones posteriorly in 3 at least gleaming more bronzy or yellowish; plumula dark or black; first basal cell without any distinct whitish streak.

    3 chalciurus n. sp. (p. 435)
- 54. (a) Hair and hair-like scales on propleurae, prosternal part, front coxae and pleurae predominantly pale or whitish or with more whitish elements intermixed; scaling on thorax and scutellum above and especially on abdomen above, other than white scales on latter, either predominantly pale, whitish greyish, or yellowish whitish or with more pale ones; venter with dense and mainly whitish scaling; scaling on legs mainly whitish.
  - (b) Hair and hair-like scaling on these parts predominantly dark or black or with more numerous black elements; scaling on thorax and scutellum above and on abdomen above, other than white ones on latter, with distinctly more and denser black scaling; venter with sparser white scaling and more numerous black ones; scaling on legs also mainly dark or blackish in certain lights. . . . . d cuthbertsoni n. sp. (p. 440)
- 55. (a) Wings (pl. i, fig. 9) with a slight extension of infuscation in marginal cell beyond discal spot; a distinct small roundish spot on cross vein at base of upper cubital branch and another at base of third posterior cell and sometimes even with an indication of a faint spot at apex of discoidal cell; first basal cell without a distinct or conspicuous sub-

- (b) Wings without any extension of infuscation in marginal cell beyond discal spot; cross veins without any spots or with only a very faint indication of one at base of third posterior cell; first basal cell usually with a distinct subopaquely whitish streak or spot; white scaling across hind margins of tergites 2 and 3 very little or scarcely interrupted discally.
- 56. (a) Infuscation in wings darker, dark brownish to chocolate brownish; spot on middle cross vein region larger, triangular and extending to costal cell, thus appearing more as a peninsula of infuscation in costal cell; base of upper cubital branch tending to be less sharply bent at right angles; hairs on coxae mainly whitish or with more numerous pale hairs in 3 at least; extreme sides of tergites below with distinct white hairs intermixed in the dark tufts; fine pale scales on abdomen above broader; prongs of 3-hypopygium slightly narrower, more slender and longer.

. . . .  $3 \circ \text{eremobius n. sp. (p. 441)}$ 

(b) Infuscation paler, more yellowish, the middle parts of cells in this part more translucent; spot on middle cross vein region much smaller, narrower and not or scarcely reaching costal cell, tending to be isolated; base of upper cubital branch tending to be more sharply bent at right angles and sometimes with a suggestion of a stump; hairs on coxae mainly dark or with much fewer pale ones; extreme inflexed sides of tergites without any pale or whitish hairs among dark ones; fine pale scaling on abdomen above with the individual scales finer and narrower; apical prongs of hypopygium more flattened and relatively shorter.

. . . . doliops n. sp. var. gamka n. (p. 438)

- 57. (a) Wings not entirely or predominantly hyaline, the base, costal cell, base or basal part of marginal cell and first and second basal cells tinged or infused to a variable extent; spots on at least middle cross vein and base of fourth posterior cell more distinct or even conspicuous and sometimes spots or faint cloudiness are also indicated at base of third posterior cell or even at base of upper cubital branch; middle cross vein usually at about or just before middle of discoidal cell or at least beyond basal third of latter cell and rarely at about its basal third.
  - (b) Wings predominantly or entirely hyaline, only the extreme base and costal cell slightly subopaquely whitish, yellowish whitish or yellowish; spots only very faintly indicated or as a very faint cloudiness at base of third main vein, on middle cross vein and at base of fourth posterior cell; middle cross vein at about or at only a little more than basal third of discoidal cell.
- 58. (a) Hair on sides of abdomen longer, much denser, more shaggy or tufty and either with whitish hairs or whitish tufts intermixed, especially on sides of tergite 2 and below those on other tergites, or with conspicuous, dense, flattened, white scales between and below black tufts; coxae with more black bristly hairs; wings tending to be more darkly infuscated or spotted anteriorly; second vein originating obtusely a little before middle cross vein and usually without or scarcely an indication of a stump; femora with denser, longer and more conspicuous fine hairs below; spines on femora and spicules on tibiae more strongly developed, more numerous; antennae tending to be closer together; joint 2 subglobular or sub-barrel-shaped; terminal joint of joint 3 much shorter than slender part and not thickened in middle.
  - (b) Hair on sides of abdomen relatively shorter, much sparser and not dense and shaggy and without long white ones or with long and dense white scales intermixed; coxae without any or with much fewer black bristly hairs; wings tending to be more faintly infuscated or spotted anteriorly; second vein originating at right angles opposite or near middle cross vein and usually with a distinct stump; femora without any or with very much shorter hairs below; spines and spicules less strongly developed; antennae tending to be more widely separated; joint 2 more flattened, lens- or disc-shaped and, if barrel-shaped, other characters do not differ; terminal joint of joint 3 longer, only slightly shorter or at least subequal in length to or even longer than slender part and usually distinctly thickened in middle, being more or less sub-spindle-shaped (cf. text-fig. 161).

- 59. (a) Infuscation in wings anteriorly more uniform dark blackish brown, extending from base of anal cell more or less zigzag obliquely across basal cross vein of fourth posterior cell, middle cross vein and then to about midway between latter and base of upper cubital branch and from there across to costal cell; plumula black; hair on sides of abdomen in form of dense tufts of long black hairs with some long white hairs intermixed and white hairs along extreme inflexed sides below black ones; whitish hair-like scales on pleurae less dense and conspicuous; white scaling on abdomen posteriorly in ♂ not conspicuously transversely arranged and without conspicuous or extensive ochreous or orange yellowish scaling on abdomen above; antennal joint 1 black, relatively much shorter. . . . . some forms of ♂♀ trisinuatus n. sp. (p. 449)
- 60. (a) Wings more uniformly tinged yellowish brownish or brownish in basal half of marginal cell and in first basal cell, the second basal cell clouded to a variable extent and without any distinct indications of spots at base of upper cubital branch and at base of third posterior cell.
  - (b) Wings (pl. i, fig. 16) less uniformly tinged or infuscated in basal part of marginal cell and in apical part of first basal cell, the basal and subapical parts of first basal cell and base of marginal cell being clearer and less tinged or infused than base of third vein, middle cross vein and apical part of second basal cell, the latter clear for the greater part, with distinct spot-like infusions on basal cross vein of upper cubital branch and base of third posterior cell and even an indication at apex of discoidal cell.

. . . . . . . . . . . . . . . sp. (p. 443)

- - (b) Hairs on propleural part tinted yellowish, with some dark or black ones intermixed on coxae and in mesopleural tuft; hair on venter in apical half or more dark; scaling on abdomen above with much black scaling and with the darker, more fulvous brownish or blackish brown ones more extensive on sides in form of conspicuous dark or blackish patches between white ones; scaling on venter with dark or blackish ones, especially on sides; terminal joint of antennal joint 3 usually slightly shorter than slender part; second basal cell tending to be clouded all over and spot at its apex larger.

62. (a) Second vein in wings originating obtusely either opposite or just in front of middle cross vein and without a basally directed stump; upper cubital branch distinctly less sinuous; antennae closer together; joint 2 subglobular or sub-barrel-shaped; bulbular base of joint 3 more bulb-like; hair on thorax and pleurae denser, the hair-like scaling on pleurae and coxae much denser; hairs in collar, on propleurae, prosternal part and pleurae mainly creamy whitish; those on sides of tergites 2 and 3 also pale creamy yellowish to ochreous yellowish and with fewer black ones; scaling on abdomen mainly pale, the more whitish ones arranged almost uninterruptedly across hind margins; hind margins of tergites and sternites, especially in hinder half, more broadly reddish;

- (b) Second vein originating at right angles opposite middle cross vein and with a longish stump; upper cubital branch distinctly more sinuous; antennae more wider apart; joint 2 lens- or disc-shaped; broad base of joint 3 more flattened and discoidal; hair on thorax and pleurae sparser and hair-like scales on pleurae and coxae very sparse; hairs in collar and on lower parts of thorax with dark or black ones intermixed; hairs on sides of tergites 2 to 7 mainly dark or black or with fewer pale ones; scaling on abdomen, other than discally interrupted white bands and some greyish or yellowish ones, with much dark or blackish ones as well; hind margins of tergites and sternites not or only obscurely or narrowly reddish posteriorly; legs with sparser greyish whitish scaling, the tibiae more brownish and distinctly much longer than femora.
- 63. (a) Dark and white tufts of flattened scale-like hairs and scales on sides of tergites 2-5 distinctly much longer, denser, more shaggy or bushy; bristly hairs on sides of abdomen also longer and denser and those along extreme inflexed sides much more numerous and denser; hairs and scales on prosternal part, mesosternum and coxae distinctly longer, denser, more bushy; ocellar tubercle smaller, subglobular, pimple-like, scarcely longer than broad, the front ocellus not or scarcely larger than posterior ones; terminal joint of antennal joint 3 much longer, only a little longer than or not less than twice length of slender part; scutellum distinctly less convex, more flattened discally, more subtriangularly rounded, its apex more bluntly pointed; front and middle femora with distinctly longer and denser fine hairs below; basal joint of front tarsi with only fine brush-like hairs or with much shorter and feebler spicules among them; wings with 3 to 6 spots or spot-like infuscations.
  - (b) Dark and white tufts of flattened scale-like hairs and scales on sides of tergites 2-5 (or 6) relatively shorter, less dense, less shaggy; bristly hairs on sides of abdomen relatively shorter or very much shorter, less dense and those along extreme inflexed sides distinctly fewer, sparser, less dense; hairs and scales on sternal parts and coxae much shorter and less bushy; ocellar tubercle slightly larger, more elongate, distinctly longer than broad, the front ocellus usually larger than posterior ones; terminal joint of antennal joint 3 distinctly much shorter, small, very much shorter, usually not more than a third, sometimes only a fourth or fifth length of slender part; scutellum usually distinctly more convex discally and more semicircularly rounded posteriorly; front and middle femora with much shorter and sparser fine hairs below; basal joint of front tarsi with distinctly longer, stouter and more conspicuous spicules among fine hairs below; wings with 4 distinct spots in middle and fainter ones at apex of discoidal and base of second submarginal cells respectively.
- 64. (a) Longish scale-like hairs and scales on sides of tergites 2-6 denser and longer and with dense brownish ones on sides of tergites 2 and 4; hairs and scales on face gleaming silvery whitish, without black ones; hairs and scales on body below gleaming vitreous or silvery white; legs, including coxae, predominantly yellowish brownish, only upper parts of femora darkened; pleural parts more extensively yellowish brownish; middle cross vein in wings tending to be only a little before middle of discoidal cell; antennae wider apart, space between them a little more than twice length of joint 1; hind tibiae with more numerous spicules on outer upper part and these in more than one row.
  - (b) Longish scale-like hairs and scales on sides of tergites 2-5 relatively sparser, shorter and with dense brownish ones only on anterior part on sides of tergite 2; hairs and scales on face more yellowish, but also with numerous dark or black hairs and, if scales are white, they are duller white; hairs and scales on body below on the whole duller, more chalky whitish and bristly hairs on coxae more straw-coloured yellowish; coxae and femora above more extensively darkened or black; pleural parts darker or with less extensive yellowish brown parts; middle cross vein tending to be much or more before middle of discoidal cell; antennae relatively closer together, space between them only about or scarcely twice length of joint 1; hind tibiae with distinctly fewer and sparser spicules on outer upper part and in a single row.

- - (b) Hind margins of tergites either not reddish or more narrowly or only obscurely so and the sides also less extensively reddish; red on sternites usually much less extensive and on less or much less than apical half of segments; wings usually with fewer, rarely with 5 or more, spots, usually with only the following 3 distinct or conspicuous spots present: a large one at base of third vein, a large and conspicuous one on middle cross vein and a smaller one at base of fourth posterior cell, but sometimes with a fourth faint one at base of third posterior cell, but usually without any spot or indication of one at base of upper cubital branch and, if one is present or indicated, hind margins on abdomen not extensively reddish and also without a distinct spot at base of fourth vein.
- 66. (a) Wings more vitreous or glassy hyaline, the base and anterior part not or less subopaquely yellowish or pale yellowish brownish; spots at base of third vein and on middle cross vein relatively smaller, with a tendency for a faint infusion to be also present at apex of discoidal cell; hind margins of tergites more broadly and conspicuously reddish, their sides more broadly so and even more so posteriorly, tergite 7 in 33 being entirely or predominantly reddish; bristly hairs on coxae, certain bristles intermixed in mesopleural tuft, bristly hairs across hind margin on sides of tergite 1 and on extreme sides of tergites 4 and 5 below gleaming more pale yellowish whitish or only feebly or very pale reddish or pinkish golden; coxae with more dark or black hairs; pale hairs in collar mostly whitish; white scales across hind margins of tergites relatively shorter and broader; smaller forms, usually less than 14 or 15 mm. long. . . . . 67
  - (b) Wings slightly more greyish hyaline, the base and anterior part tending to be darker, more subopaquely yellowish to yellowish brown or even dark brownish; spots at base of third vein and on middle cross vein relatively larger and without an indication of an infusion at apex of discoidal cell; hind margins of tergites only reddish discally from tergite 4 in ♂ and these very narrowly, obscurely or not red-margined in ♀, the sides in both sexes less broadly reddish and tergite 7 and sides posteriorly in ♂ not extensively reddish; hairs on coxae, numerous bristles in mesopleural tuft and in front of wing bases, bristly hairs across hind margins of tergite 1 above on sides and on extreme sides of tergites 4 and 5 below distinctly gleaming deep or deeper reddish golden; coxae with much fewer black hairs intermixed; pale hairs in collar tinted reddish golden; white scales across hind margins of tergites more elongate and narrower; large form, about 14 or 15 mm. long. ♣ ? robustalis n. sp. (p. 455)
- 67. (a) Hairs on face with more numerous black ones in 3 and entirely or mainly pale in \$\varphi\$, the pale ones more whitish or yellowish; humerus, sides of thorax, mesopleural tuft and coxae with fewer reddish golden bristles and hairs, many of the not entirely white ones gleaming more yellowish or yellowish white, the pleurae thus appearing more whitish; pale scaling on body above, other than white ones, more ochreous or golden yellowish, the white scales themselves longer and relatively narrower; long scale-like hairs or scales on sides of abdomen distinctly longer, narrower and apparently with longer points; flattened white scales across hind margins of tergites 2-7 slightly narrower; terminal joint of antennal joint 3 distinctly much shorter than slender part.
  - (b) Hairs on face with much fewer black ones in δ and with more dark ones intermixed in ♀, the pale ones gleaming more pinkish golden; humerus, sides of thorax above, mesopleural tuft and coxae with more numerous and more distinct or conspicuous pinkish or reddish golden bristles and hairs, the pleurae thus appearing more yellowish; pale scaling, other than white ones, deeper reddish golden, the white scales shorter and

- 68. (a) Wings much clearer, more vitreous or glassy hyaline or with only the basal and costal parts tinged subopaquely yellowish or only feebly smoky yellowish; spots usually smaller and less conspicuous and spot-like infuscation at base of third posterior cell fainter, scarcely indicated or sometimes absent and without an indication of a faint infusion at base of upper cubital branch; hairs on face either predominantly black, with numerous pale ones or sometimes entirely pale or whitish; mesopleural tuft and coxae without any or with fewer black bristles intermixed; scaling on body above, other than white ones, with distinctly more extensive and more conspicuous or even predominantly greyish yellowish, ochreous yellowish to brownish golden ones and the dark scaling tending to be more confined to certain patches.
  - (b) Wings distinctly more smoky greyish or brownish, the base and anterior costal part darker, more smoky brownish to even coffee-brownish; spots on cross veins (at base to third vein, on middle cross vein region and at base of fourth posterior cell) distinctly more conspicuous or larger and spot at base of third posterior cell usually well defined and usually also with an indication of a spot or even a distinct one at base of upper cubital branch; bristly hairs on face always mainly or entirely dark or black; mesopleural tuft, coxae and trochanters with more numerous black bristles intermixed and, if without any black hairs, wings are darkened basally; scaling on body above, other than white ones, usually with fewer pale ones and more extensive black scaling in addition to dark patches.
- 69. (a) Face, mesopleural tuft and coxae with distinctly more numerous black bristly hairs or more black ones intermixed; scaling on body above, especially abdomen and excluding normal white scales, with more extensive dark or black ones in addition to usual patches of dark ones and with much fewer or scarcely any pale scales; terminal joint of antennal joint 3 usually longer, sometimes scarcely or only a little shorter than slender part; femora on the whole more extensively darkened.

. . . . ♂ ♀ incisuralis f. fumosa n. (p. 463)

(b) Face and especially mesopleural tuft and coxae with distinctly fewer or without any black bristly hairs intermixed, sometimes with some pinkish or reddish golden ones also intermixed in mesopleural tuft and on coxae; scaling on body above and especially abdomen with much yellowish or ochreous yellowish to ochreous brownish scaling in addition to white ones and the black ones which are more confined to dark patches; terminal joint of antennal joint 3 tending to be relatively shorter, usually distinctly much shorter than slender part; femora apparently less extensively darkened, the lower part and especially lower apical parts paler or more extensively yellowish.

. . . some dark-winged forms of  $3 \circ incisuralis$  (Macq.) (p. 459)

70. (a) White scaling on head and body above conspicuously developed, that on thorax arranged more or less in four longitudinal bands of slightly longer and broader hairlike ones; that across hind margin of scutellum dense; that across hind margins of tergites 2-7 composed of conspicuous, relatively short, broadish, more or less cuneiform scales, those posteriorly on each side very broad and flattened, strap-like; antennal joints 1 and 2 more constantly paler reddish.

. . . . ♂ \varphi incisuralis f. aridicola n. (p. 462)

(b) White scaling on these parts developed to a lesser extent, that on thorax either in four less conspicuous bands of duller and finer greyish ones or even predominantly dark and reddish or brownish; white scaling on scutellum also finer, less conspicuous or sometimes more yellowish; that across hind margins of tergites composed of relatively narrower, finer, sometimes more bat-shaped ones, sometimes with those discally across some of the tergites tending to be more greyish or yellowish and sometimes these whitish scales are absent or not evident, the white ones posteriorly usually less conspicuous, usually distinctly narrower and either shortish or long; antennal joints 1 and 2 usually darker, black or only obscurely reddish or brownish to a variable extent.

- 71. (a) White scales across hind margins of tergites more developed and more conspicuous, the individual scales slightly broader and those on sides broader and more conspicuous; hairs on face with more numerous black ones or even entirely dark in both sexes; antennal joints I and 2 usually darker or black; lower apical part of at least front femora more distinctly or even extensively reddish; red hind margins of tergites more indistinct or not so conspicuous; spots in wings usually larger and more conspicuous.
  - (b) White scales across hind margins of tergites above discally not developed or very poorly developed, the individual scales finer, more slender and hair-like and those on sides also more slender and less conspicuous; hairs on face, especially in φ, with much fewer dark ones or even entirely pale or whitish; antennal joints 1 and 2 or at least 2 more reddish to a variable extent; femora entirely dark or black or apical part of front ones at least not or more obscurely reddish; reddish hind margins of tergites and sternites usually more conspicuously evident; spots in wings distinctly smaller, fainter and the one at base of third posterior cell often scarcely indicated.
- 72. (a) Femora very dark or black, only their lower apical parts reddish to a variable extent and their scaling mainly whitish; head and body usually with very pale, whitish or greyish whitish or straw-coloured scales, those on thorax more or less in four bands; hind border of scutellum with fairly conspicuous whitish scales, hind margins of
  - greyish whitish or straw-coloured scales, those on thorax more or less in four bands; hind border of scutellum with fairly conspicuous whitish scales; hind margins of tergites with more or less interrupted bands of fine bat-shaped scales usually composed of more or less interrupted stretches of greyish white or snow-white ones; yellowish, ochreous yellowish or yellowish brownish scaling on abdomen above less conspicuous, long scales in tufts on sides slightly narrower, more spear-blade-shaped subapically and their apices very sharply pointed; wings usually more vitreous hyaline.

(b) Legs black or sometimes extensively yellowish and with yellowish scaling; head and body with more brownish or deeper brownish golden scaling, those on thorax dense, hair-like and mainly deep brownish golden; hind margin of scutellum sometimes with more yellowish or yellowish whitish scales; hind margins of tergites with the pale scales across them tending to be white only on sides and more yellowish whitish discally, especially in φ; abdomen above with deep brownish golden or fox-reddish scaling conspicuously developed; long scales in tufts on sides of abdomen slightly broader, more strap-like, with most or many of them truncate apically, their apical margin emarginate or bluntly rounded; wings more greyish hyaline.

. . . . 3 \(\rightarrow\) incisuralis (Macq.) from Rhodesia (p. 464)

# Anthrax conspurcata Wied.

(Wiedemann, p. 264, Aussereurop. Zweifl. Ins., i, 1828.)

(Syn. = rubiginipennis Macquart, tab. 19, fig. 10, Dipt. Exot., ii, 1840 (wing only); confusemaculata Macq., p. 74 and tab. iii, fig. 9, Dipt. Exot., Suppl. v, 91, 1855; spectabilis Loew, p. 213 and tab. ii, fig. 17, Dipt. Faun. Südafr., i, 1860; Ricardo, p. 92, Ann. Mag. Nat. Hist., vii (7), 1901; Hesse, p. 173, Ann. Transv. Mus., xviii, 1936; pithecius Bezzi, nec Fabr., p. 621, Trans. Ent. Soc. Lond., 1911; Bezzi, p. 122, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 161, The Bombyliidae of the Ethiopian Region, 1924.)

This conspicuous and fairly common South African species agrees well with Wiedemann's somewhat abbreviated description of *conspurcata* and there appears to be very little doubt that the other species mentioned above are synonyms of it. In the case of *rubiginipennis* Macq., which itself has been established as a synonym

of the Palaearctic Spongostylum etrusca Fabr., it is only the illustration of the wing which is that of conspurcata. Notwithstanding Loew's remarks about confuse-maculata it is quite evident that Macquart's figure of the wing agrees with that of spectabilis described by Loew and with the general wing-pattern present in the specimens before me. There appears to be no justification either for Bezzi to refer this species to pithecius which Fabricius described from Guinea. From a comparison of the wing-pattern of the specimens in the various collections before me with that of pithecius, as described by Wiedemann (p. 263, loc. cit.), it is evident that the two species are not identical. Only a comparison of specimens of the present species with the original type of pithecius will however settle this question of identity. Loew's description of spectabilis is very satisfactory and a redescription of conspurcata, as based on a large number of specimens from various localities, is as follows:

Body predominantly black; area around antennae, basal part of face, buccal cavity, antennae, infusions along pleural sutures to a variable extent, sometimes narrow hind margins of sternites and male genitalia brownish or sienna brownish; coxae and greater part of femora dark or blackish brown or siennabrownish, the tibiae and tarsi usually paler yellowish brown and apices of tarsi and claws usually blackish. Vestiture with the shortish hair on frons mainly black; that on antennae also black; that on face composed of black and pale greyish yellowish to slightly reddish gleaming ones intermixed especially above buccal cavity; fine hair on occiput gleaming fulvous, vellowish brownish to velvety brownish; short hairs on disc of thorax predominantly blackish brown or black; longer ones in collar black and whitish or straw-coloured, becoming more whitish to fulvous on humerus; some bristles on sides of thorax, prealar and postalar bristles black and with some reddish yellowish gleaming ones on sides of thorax; mesopleural tuft whitish or straw-coloured whitish; longish hairs in propleural part and front coxae mostly whitish or tinted pale reddish golden, but with intermixed dark or black hairs, especially on front coxae; fine hairs and hair-like scaling on pleurae appearing whitish, greyish, yellowish or fulvous or even reddish golden in certain lights, but the true fine hairs are really dark or blackish brown; bristly hairs on coxae, fine ones on scutellum and also the bristles and bristly hairs on abdomen above black; dense tuft on sides of tergite I either predominantly white or yellowish white, but with the hairs on extreme sides below gleaming more reddish yellow or the lower part is dark or with numerous intermixed black ones; dense tufts on rest of sides either entirely black or with some intermixed pale bristles ventrally on extreme sides of apical parts of tergites; hair on venter relatively sparse, predominantly dark or brownish in specimens with black hairs on extreme sides of tergite 1, but paler, more greyish whitish to even pale yellowish whitish in forms with an entirely pale tuft on tergite 1; female genital tuft yellowish, brownish fulvous to brownish golden; fine hair-like scaling on frons, face and thorax above gleaming greyish whitish to yellowish whitish, sometimes even pale reddish golden; that on abdomen above usually predominantly dark or black, but with some across

hinder part of tergites gleaming more sericeous yellowish to golden; snow-white, broadish, truncated, lanceolate scales across hind margins of tergites 2-5 conspicuous, dense, long and tuft-like on sides, but sparse and short or even absent discally; those on sides of tergites 6 and 7 in 3 very dense, flattened, cuneiform, truncated, brilliantly silvery white and arranged transversely; those on sides of 6 in \$\varphi\$ in form of a dense tuft of snow-white and silvery cuneiform scales; fine scaling on venter whitish, sericeous yellowish to slightly fulvous; dense scaling on legs dull greyish yellowish to yellowish, usually slightly paler on tibiae, appearing dark on femora in some specimens. Wings with a very conspicuous and distinctive pattern of spots and infusions as portrayed by Macquart and Loew (loc. cit.), composed of a brownish or blackish brown costal cell and more or less two broad transverse blackish brown infusions and coalescing spots across basal part up to end of second basal cell and across wing beyond middle cross vein to base on second submarginal cell, the basal infusion extends beyond apex of second basal cell into a round spot at base of third posterior cell and in infusion at base of fourth posterior cell, with a fairly conspicuous pale or clear spot in anal cell and in axillary lobe and another fainter one at base of first basal cell; the other transverse infusion beyond middle composed of coalescing spots and patches, occupying marginal cell, basal part of first submarginal cell, more than basal half of first posterior cell, apical part of discoidal cell and two broadish prongs along posterior veins separating third posterior cell from second and fourth, and usually coalescing with this large infusion, but sometimes separate, is a large round spot on middle cross vein and another even larger rounded spot at base of upper cubital branch, the latter sometimes coalescing with infusion in marginal cell thus isolating a quadrangular clear area in first submarginal cell a little before upper cubital branch, the irregular clear area between the two large transverse infusions does not extend across costal cell and becomes very broad in fourth posterior cell; two large contiguous or coalescent spots on apical part of second vein and another on kink of upper cubital branch respectively, another smaller spot at end of same vein and an isolated rounded spot at apex of posterior vein between first and second posterior cells; second vein originating at right angles about opposite middle cross vein, usually with a stump; middle cross vein a little before middle of discoidal cell; upper cubital branch bent at right angles at about middle and provided there with a distinct stump, its base also at right angles and with a stump; lower vein of discoidal cell also with a kink at about middle and usually with a short stump at this kink projecting into third posterior cell; first posterior cell much narrowed apically; plumula whitish, yellowish to pale yellowish brownish, sometimes with some intermixed dark hairs. *Head* with the interocular space at narrowest part in front of ocellar tubercle quite or a little more than 3 times width of tubercle in  $\varphi$ , very slightly narrower in  $\delta$ ; antennae (text-fig. 133) separated by a distance quite twice length of joint 1, joint 2 saucer-shaped, joint 3 with the broad base discoidal, its basal margin tending to be rim-like, its slender part sometimes quite twice as long as broad



Text-Fig. 135. Side view of hypopygium and dorsal view of right beaked apical joint of & Anthrax conspurcata Wied.

base, its apical or terminal joint about a third to often a fifth length of slender part. Legs with spines on all the femora below; hind tibiae with a dense and conspicuous row of spicules on outer upper aspect. Hypopygium of 3 (text-fig. 135) with the beaked apical joints appearing blunt apically; aedeagus with a recurved ventral hook-like process. Two protruding terminal lamellae in last sternite of 3 rounded apically.

In the Commonwealth Institute, British, Transvaal, Rhodesian, Natal, Durban, Albany and South African Museums.

Length of body: about 7-14 mm. Length of wing: about 8-16 mm.

Locality: South-eastern Cape Province, Basutoland, Natal, Zululand, Eastern and Northern Transvaal, Southern Rhodesia and South-West Africa.

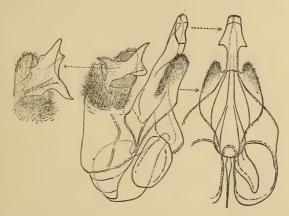
This species is very easily distinguished from most South African species by its distinctive and spotted wing-pattern. Within limits it appears to be variable in characters such as the extent of the coalescence of the large spots in the wings, the presence or absence of dark hairs on sides below the white tuft on sides of tergite 1, the predominance or poor development of pale hairs and scaling on pleurae, abdomen above, and venter, etc. This species seems to be entirely absent from the drier and semi-arid inland plateau.

# Anthrax plumipes n. sp.

Superficially this species resembles *conspurcata* very closely, but on comparison is found to differ markedly in the following respects:

Body with the pleurae and even sides of tergites below more uniformly castaneous brown or reddish brown. Vestiture with the erect hairs and bristly hairs predominantly or entirely black, especially on face, sides of thorax, in mesopleural tuft, pleurae and venter, only a few intermixed pale hairs being present in collar; tuft on sides of tergite 1 with much less extensive white upper part and without any pale hairs on extreme sides of tergites or on venter; scaling with fewer pale ones on frons and face; that on sides of thorax and pleurae, coxae and on venter predominantly dark, apparently without any fine pale scaling on abdomen above, these scales being distinctly broader, more lanceolate, gleaming distinctly purplish black; scaling on legs distinctly much darker, only gleaming greyish graphite-like or purplish in certain lights; white scaling on abdomen in form of shorter cuneiform scales in small patches on sides of tergites 1-4, with the conspicuous silvery ones at end of abdomen present on sides of last three tergites in  $\Im$ , distinctly shorter and not arranged transversely; that on sides posteriorly in  $\Im$  also shorter than in  $\Im$  of conspurcata. Wings (pl. i,

fig. 1) with a more or less similar pattern, but with the basal infuscation more uniform, the clearer spots in anal cell and base of first basal cell very indistinct; infusion in marginal cell continuous apically, leaving only a small clear preapical area; infuscation at apex of second vein in form of a small spot and not two large confluent spots; spot on kink of upper cubital branch larger; spot at apex of first posterior cell very much larger or occupying both posterior veins; spot at base of third posterior cell isolated and not confluent with basal infuscation; infuscation at apex of posterior vein between third and fourth posterior cells tending to be isolated and with a distinct clear hyaline spot near base of first



Text-fig. 136. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of aedeagal complex of & Anthrax plumipes n. sp.

posterior cell; second vein not deeply bent or sinuous apically; vein between discoidal and third posterior cells only sinuous, not sharply kinked and also without a stump; anal cell closed apically on hind border of wing. Head with the interocular space in front of ocellar tubercle relatively narrower, not quite 3 times width of tubercle; antennae distinctly more widely separated, quite  $3\frac{1}{2}$  times length of joint 1, terminal joint of joint 3 longer, about half as long as slender part. Legs with more and denser hairs on femora, with much denser, longer, more conspicuous, flattened scales on hind tibiae on outer and inner aspect, giving them a feathery appearance, not present in other species; tarsi distinctly much longer, subequal in length to tibiae. Hypopygium of 3 (text-fig. 136) entirely different from that of conspurcata; beaked apical joints complex, with forwardly and backwardly projecting prongs as shown in figure; aedeagal complex without a ventrally directed hook, but with a finely spinulate process on each side and a hook-like edge on each side. Terminal lamellae in last sternite more obtusely angular apically.

From a 3-holotype in the South African Museum and a 2-allotype in the Transvaal Museum.

Length of body: about 12½-15 mm. Length of wing: about 13-15½ mm. Locality: Southern Rhodesia: Saw Mills (Stevenson, 10 Dec. 1926) (holotype). North-west Transvaal: Mara near Pietersburg (Breyer, June 1918) (allotype).

## Anthrax nubeculosus n. sp.

Body black; buccal cavity yellowish; pleural area below base of wings and along sutures yellowish brownish to castaneous brownish to a variable extent; extreme sides of tergites below and venter more or less pale yellowish brownish or castaneous; sides of last two tergites broadly pale yellowish brownish or even reddish; hind margins of sternites more pale yellowish than rest of venter; hypopygium of 3 yellowish reddish; femora dark or dark blackish brown, their lower apical parts paler, more yellowish brownish, the tibiae and tarsi pale vellowish brownish, the apical parts of the latter and apices of claws dark. Vestiture with the hairs on head predominantly black; fine bristly ones on disc of thorax black: bristles on sides of thorax and on scutellum also black; hair in collar, propleural and prosternal parts mainly whitish or greyish whitish; mesopleural part with numerous intermixed black bristles; bristly hairs on coxae also black; those on abdomen above and dense tufts on sides predominantly black; tuft on sides of tergite 1 however white; hairs on venter mainly dark or black; scaling on frons and face greyish white to whitish; that on thorax above composed of fine black ones and gleaming greyish white or white ones, especially posteriorly and on scutellum; that on sides of thorax more hairlike and white; a patch at apex of scutellum consists of broadish white scales; longish hair-like scales on pleurae grevish white to white; scaling on abdomen above in form of flattened black scales which in certain lights gleam pale, of broader, white, cuneiform ones arranged more or less transversely across hind



Text-fig. 137. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of aedeagal structure of & Anthrax nubeculosus n. sp.

margins of segments, more densely on sides, those on sides of tergite 1 more slender, those on sides of other tergites extending right round to below between black tufts, those on last two tergites arranged transversely, dense, cuneiform and gleaming silvery; scaling on legs predominantly white, becoming brownish or black towards apices of femora and those on venter white and cuneiform. Wings (pl. i, fig. 2) with the dark coffeebrownish infusions and spots as shown in figure, the rest of wing glassy hyaline; second vein originating at right angles at a distance in front of middle cross vein which is about equal to length of latter, without a stump at bend; stump at bend of upper cubital vein absent or only indicated; middle cross vein a little beyond middle of discoidal cell; vein between latter and third posterior cell angularly bent, S-shaped, with an indication of stumps at bends; axillary lobe narrow, as broad as anal cell; plumula black. Head with the interocular space in of nearly or about 3 times width of ocellar tubercle;

antennae fairly close together, separated by length of joint 1, joint 2 subbarrel-shaped, the terminal joint of joint 3 subequal in length to or only a little shorter than slender part. Legs with well-developed spines on all the femora. Hypopygium of 3 (text-fig. 137) with the beaked apical joints relatively small; aedeagal complex with a small ventrally directed hook-like process apically.

From 2 33 in the South African Museum.

Length of body: about 8-10 mm. Length of wing: about 8-11½ mm.

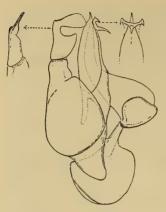
Locality: Namaqualand: Bowesdorp (Mus. Exp., Sept. 1941) (type); Kamieskroon (Mus. Exp., Sept. 1930).

Easily recognized by the spotted wings and white and blackish scales on abdomen above. According to the key and notes of Sack (pp. 510 and 522, Abh. Senckenb. Nat. Ges., 30, 1909) this species has the characters of Chalcamoeba and may be considered as an aberrant species of Anthrax which belongs to the Chalcamoeba-group.

### Anthrax nanus n. sp.

This small species, with uniformly infuscated wings, is characterized as follows:

Body dark chocolate-brownish; pleural parts and venter tending to be paler; hind margins of sternites narrowly yellowish and male genitalia yellowish; buccal cavity yellowish; greater part of femora castaneous or yellowish brown, the tibiae and tarsi yellowish, the apical parts of the latter dark. Vestiture on head predominantly dark blackish brown or black, with some intermixed straw-coloured hairs just above buccal rim especially in  $\mathfrak{P}$ ; hair on thorax above predominantly black, but in  $\mathcal{P}$  with a few pale ones intermixed in humeral part; that in mesopleural tuft black, but with some pale hairs intermixed in  $\mathcal{Q}$ ; that on propleural part dark, but becoming greyish on prosternal part and on front coxae; that on pleurae greyish whitish, but more yellowish brownish along upper parts, especially in 3; hair on abdomen predominantly chocolatebrownish to blackish brown, but that on sides of tergite I yellowish whitish, more whitish in \$\inp\$; that on venter greyish whitish or straw-coloured; fine scaling sparse above, gleaming dull brassy in certain lights, yellowish on frons; fine brassy scales also across hind margins of tergites; rest of fine scaling on abdomen above black, without any white or silvery scaling; scaling on legs greyish yellowish in certain lights. Wings uniformly dark coffee-brownish, without any clear areas or spots, but with darker spot-like infusions on cross veins; veins reddish brownish; second vein sinuate before apex; upper cubital branch kinked or bent backwards at about middle and provided with a stump at base; middle cross vein before middle of discoidal cell; lower vein of latter cell sinuous; anal cell much narrowed apically, in 3 almost closed apically; axillary lobe not very much broader than anal cell; plumula pale or yellowish whitish. Head with the interocular space in front of tubercle about 11 times



Text-fig. 138. Side view of hypopygium, oblique dorsal view of right apical joint, and ventral view of apical part of aedeagal process of *Anthrax nanus* n. sp.

width of tubercle in 3 and about 2 times in 9; antennae separated by about  $2\frac{1}{2}-3$  times length of joint 1, joint 2 sub-barrel-shaped, broader than long, terminal joint of joint 3 half as long as slender part. Legs without any spines on front and middle femora, but with some shortish ones on outer lateral and upper apical aspect of hind ones. Hypopygium of 3 (text-fig. 138) with the apical joints wrench-shaped, the upper limb very much laterally compressed; aedeagal complex with the ventral process in form of three hook-like processes as shown in figure.

From a  $\beta$ -holotype in the Commonwealth Institute and a  $\varphi$ -allotype in the South African Museum.

Length of body: about 5-6 mm. Length of wing: about  $6\frac{1}{2}$  mm.

Locality: Southern Rhodesia: Matopo Hills (Mackie, April 1932) (holotype); Redbank

(Stevenson, 18 Aug. 1926) (allotype).

Easily recognized by its uniformly dark coffee-brown wings, dark hair, absence of silvery scaling on abdomen and small size.

Anthrax badius n. sp.

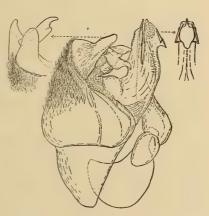
(Syn. = diffusus Bezzi, in part, nec Wiedemann, p. 123, Ann. S. Afr. Mus., xviii, 1921.)

The large specimen (minus the head) which Bezzi referred to diffusus Wied. and which is characterized by wholly infuscated wings, is not diffusus but belongs to this species. From the description of diffusus, given by Wiedemann (p. 291, Aussereurop. Zweifl. Ins., i, 1828) and from specimens of the latter before me, it differs in the entirely infuscated wings, relatively shorter tufts on sides of abdomen, entirely or predominantly dark hair on sides of tergite 1, entirely different type of hypopygium, etc. The chief distinguishing characters of this remarkable species are:

Body black; face and buccal part yellowish brownish to muddy brownish; antennae, infusions on or along sutures of pleurae, humeral angle, sometimes sides of thorax above, hinder part of scutellum, sides of abdomen and venter to a variable extent and the male genitalia reddish brown, piceous reddish to hematitic reddish in 3 and darker in \$\partial\$; legs dark reddish brown, piceous reddish or hematitic reddish, the femora however darkened above to a variable extent and apical parts of tarsi also darkened. Vestiture with the bristly hairs and bristles on head and body predominantly black, but with some pale or whitish hairs intermixed in collar and on front coxae; tuft on sides of tergite 1 entirely

black or with its upper part only slightly whitish in some 33; fine hair-like scaling above somewhat sparse, appearing yellowish brownish to fulvous brownish or even dull brassy in certain lights, those on pleurae brownish, darker in 9; fine scaling on abdomen above black and the broadish silvery white ones arranged as small, conspicuous, transverse patches across hind margins on sides of tergites 1-4 and more broadly, extensively and more conspicuously on side of tergites 5-7; scaling on venter black; scaling on legs blackish or black, gleaming greyish or graphite-like, that on femora above more conspicuously black. Wings well developed, wholly infuscated dark chocolate- to coffee-brownish, the apical and hinder parts slightly less darkly infused and with distinct darker spot-like infusions on cross veins; upper cubital branch almost bent at right angles just before the middle and with a stump at its base;

middle cross vein a little before middle of discoidal cell; vein separating latter from third posterior cell sinuous, not angularly bent or with a stump; axillary lobe very much broader than anal cell; squamae brownish, brownish - fringed; plumula black. Head with the interocular space on vertex in 3 a little more than 2 to a little more than 3 times width of tubercle and about 4 times width of tubercle in Q; antennae separated by about 2 to almost 3 times length of joint 1, joint 2 saucer-shaped, discoidal part of joint 3 with its basal part rim-like, terminal joint of 3 about or a little more than a fourth length of slender part; proboscis very short, stumpy, its labellar lobes broad, longer than base and spinuliferous. Legs with numerous spines on all the femora below; spicules on outer upper aspect of



Text-fig. 139. Side view of hypopygium, apical view of apical processes of basal parts and beaked apical joint, and ventral view of apical part of ventral aedeagal process of & Anthrax badius n. sp.

hind tibiae dense and very strongly developed. Apical margin of last sternite in 3 slightly bisinuate and the lateral apical angles produced into a spine-like or tooth-like process which is not present in any other species; terminal lamellae in last sternite hoof-shaped and broadened apically. Hypopygium of 3 (text-fig. 139) markedly developed, large and conspicuous; basal parts rugosely sculptured on dorsal apical half, and with stiff hairs, their apical part produced into two downwardly directed processes between which the apical joint is situated; the latter with an outer lateral tooth or process and keeled ventrally; aedeagal complex with a slight process on its dorsal aspect between apical joints, and with a process ventrally, the apical part of which is produced into a medial ventrally directed process and an upper and lower flattened dentate process on each side.

From 8 33 and 1 \( \text{(types in the South African Museum and paratypes in the Transvaal and South African Museums).}

Length of body: about  $11\frac{1}{2}$ – $15\frac{1}{2}$  mm. Length of wing: about  $13\frac{1}{2}$ –17 mm.

Locality: South-western Cape: Boskloof, Worcester (Wood, Jan. 1933) (holotype); Hex River: Robertson (Trimen, Jan. 1876); Ceres (Barnard, 1922); Spitskop, Meiringspoort in the Swartberge (Mus. Exp., Jan. 1935); Schusters River near Simonstown (Thorne, Feb. 1938). Eastern Cape: Resolution in Albany Dist. (Walton, 27 Dec. 1921). Basutoland: Mamathes (Guillarmod, 28 Jan. 1951) (allotype).

This species is easily recognized by its size, wholly infuscated wings, black hair and remarkable hypopygium. The presence of an apical prong on each side of last sternite in  $\delta$  is also a distinguishing feature. It is remarkable that in the Cape only the  $\delta\delta$  of this species have thus far been taken. Like many other dark-winged Bombyliids in the southern Cape and other mountainous parts of South Africa it is a species adapted to a montane existence.

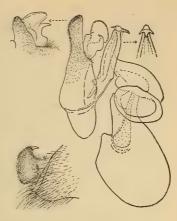
## Anthrax phaeopteralis n. sp.

(Syn. = diffusus Bezzi, nec Wiedemann, p. 123, Ann. S. Afr. Mus., xviii, 1921.)

The specimen from 'Jackalswater' was referred to diffusus Wied. by Bezzi. From Wiedemann's description (p. 291, Aussereurop. Zweifl. Ins., i, 1828) which he also compares with his other fairly distinctive species hessii, it is evident that this specimen belongs to a different species. According to Wiedemann three distinct spots are present in the wings of diffusus and the anterior basal infuscation is more delimited. In this specimen the brownish infuscation merges almost imperceptibly into less infused parts of wings and spots at bases of posterior cells are very faint. The two specimens are characterized as follows:

Body black; sutural parts of pleurae more or less castaneous brownish to a variable extent; hind margins of sternites also tending to be broadly, but obscurely, reddish brownish and hind margins of tergites 4–7 on sides also reddish brownish; femora very dark blackish brown or piceous brownish, the tibiae slightly paler, more reddish brownish. Vestiture on head, disc of thorax and bristles on its sides black; hair in collar and on humeral part whitish, but with intermixed black bristles; those in tuft above front coxae and on front coxae more yellow or pale fulvous brownish, but with some intermixed black elements; hair on pleurae blackish brown to brownish, with whitish hairs intermixed in mesopleural tuft; hairs on abdomen above and below predominantly black, that on sides dense and tufty and that on sides of tergite 1 brush-like and white; fine scaling on head, thorax and scutellum gleaming brownish golden to brassy yellowish; fine hair-like scaling on pleurae brownish yellowish; fine scaling on abdomen above predominantly black; the very dense broadish silvery white scales broad on sides of tergites 5–7, leaving only a narrow discal part

black and in form of small patches on sides of tergites 2-4; scaling on venter mostly dark; that on legs also dark but gleaming greyish or brownish. Wings with the costal cell and basal two-thirds up to level of second basal cell and across to end of costal cell coffee- or chocolate-brownish, this darker part more or less imperceptibly grading into grevish and less tinged apical and hinder parts and apical parts of anal and axillary cells; spot-like infusions on apical cross veins of first and second basal cells more distinct and larger than the very much fainter indications of spots on other cross veins; base of second vein with a long stump; upper cubital branch also with an indication of a stump; middle cross vein distinctly before middle of discoidal cell; vein between latter cell and third posterior cell sharply bent at about the middle; plumula black. Head with the interocular space in 3 about or a little more than 21 times width of tubercle; antennae separated by about twice length of joint 1, joint 2 sub-barrel-shaped, broader than long, slender part of 3 about 2 times length of



Text-fig. 140. Side view of hypopygium, dorso-apical view of apical part of apex and right beaked apical joint, and ventral view of apical part of aedeagus of Anthrax phaeopteralis n. sp. On left below, side view of left terminal lamella projecting from last sternite of 3 of same species.

terminal joint, the apical hairs of latter rather long, quite as long as joint itself. Legs with spines on all the femora below, those on hind ones more or less in two rows. Hypopygium (text-fig. 140) with the apical part of basal parts produced prong-like; beaked apical joints complex, their apical margin much flattened and rounded as shown in figures; aedeagal complex tridentate apically on its ventral aspect; middle part of aedeagal complex and lateral and basal struts very strongly developed, the basal strut with a flattened wing-like process on each side dorsally. Terminal lamellae (lower left figure) with a hook-like tooth dorso-apically.

From 2 33 (type in the South African Museum and paratype in the Transvaal Museum).

Length of body: about 11-11½ mm. Length of wing: about 12-12½ mm.

Locality: Bushmanland: Jakkalswater (Lightfoot, Oct. 1911) (type). Richtersveld: Brakfontein (van Son, 18 Oct. 1933).

Recognized by its infused wings and relatively poorly developed spots. In the paratype the basal infusion is slightly less extensive, not extending much beyond base of first submarginal cell. This species belongs to the *Chalcamoeba*-group. The wings of this species resemble the wing of maculipennis given by Macquart (p. 56 and tab. 20, fig. 4, *Dipt. Exot.*, ii, 1840), but the anal cell and axillary lobe of the latter are much less infused.

#### Anthrax furvus n. sp.

This smallish species with semi-infuscated wings is characterized as follows: Body black; buccal cavity and proboscis more castaneous brownish; legs dark blackish brown, the tibiae and tarsi paler, more yellowish brownish. Vestiture on head, thorax above and abdomen predominantly black; that in collar, mesopleural tuft and prosternal part with intermixed straw-coloured or yellowish greyish hairs; that in tuft above front coxae tinted fulvous brownish; fine hair-like scaling on disc of thorax and scutellum and flattened scaling on frons gleaming brownish golden; longer hair-like scaling on pleurae also brownish golden in certain lights; scaling on disc of abdomen mostly black, the broader flattened white scaling, as far as this is still present, more or less confined to sides of hind margins of tergites, more densely and more silvery on sides of last two tergites; scaling on venter mostly dark; that on legs also dark, gleaming greyish or brownish in certain lights. Wings infused chocolatebrownish in costal cell and anterior basal part up to level of apex of second basal cell and across to apex of costal cell, this infuscation however not clearly marked off, but grading imperceptibly into greyish hyaline apical and hinder parts; the darker infusions on apical cross vein of second basal cell and middle cross vein distinctly spot-like; spot-like indications also at bases of third posterior and second submarginal cells, but no spot at apex of discoidal cell; second vein without a stump at base and base of upper cubital branch also without a stump; middle cross vein very much before middle of discoidal cell; first posterior cell broadly open; axillary lobe narrowish, as broad as anal cell; plumula dark. Head with the interocular space in ♀ about 3 times width of tubercle; antennae separated only by a little more than length of joint 1, joint 2 broader than long, sub-barrel-shaped, terminal joint of joint 3 about or a little less than 2 times length of slender part. Legs with only a very few small spines on front and middle femora and about 7 spines on hind ones.

From a Q in the South African Museum.

Length of body: about 7 mm. Length of wing: about 7½ mm.

Locality: Namaqualand: between Kamieskroon and Springbok (Mus. Exp., Oct. 1939).

This specimen may prove to be the  $\mathcal{Q}$  of phaeopteralis, but as it differs in having the antennae closer together, no stump at base of second vein, the middle cross vein much nearer base of discoidal cell and the axillary lobe much narrower, it is provisionally referred to a separate species.

### Anthrax cunctator n. sp.

Body black; narrow hind margins of sides of tergites and sternites pallid or brownish; anterior lateral margins of buccal cavity ivory yellowish; femora blackish brown or dark, tending to be paler below towards apex, the tibiae and tarsi more yellowish. Vestiture black on head, thorax above, and on

abdomen; that in collar, propleural and prosternal parts whitish or greyish whitish, with some intermixed black hairs in collar and on front coxal part; mesopleural tuft black, but with intermixed whitish hairs; bristly hairs on coxae mostly black; genital tuft fulvous; scaling on head and fine hair-like ones on thorax and scutellum sericeous yellowish; that on abdomen above mainly black, gleaming greyish in certain lights; flattened white scaling, as far as these are still indicated, concentrated on sides and more so on last two segments; scaling on legs greyish yellowish to brownish. Wings as shown in pl. i, fig. 3; the chocolate-brownish infusion more or less grading into the more greyish hyaline part; distinct darker spot-like infusions on all the cross veins, the one on apical cross vein of discoidal cell sometimes very faint; a stump present on both second vein and upper cubital branch; middle cross vein at about middle of discoidal cell; first posterior cell broadly open apically; anal cell tending to be acute apically; plumula whitish or sericeous yellowish, sometimes with an admixture of dark hairs. Head with the central furrow in front of ocellar tubercle fairly deep; interocular space in 2 about 3 times width of tubercle; antennae separated only by length of joint 1, joint 2 disc-shaped, slender part of 3 about 11 times as long as terminal joint. Legs with only 4-6 small spines on front femora, 6 or 7 on middle ones, and about 6-10 on hind ones below.

From 3 PP in the South African Museum.

Length of body: about  $5\frac{1}{2}$ - $7\frac{1}{2}$  mm. Length of wing: about 8 mm.

Locality: Griqualand West: 26 miles north of Postmasburg (Mus. Exp., Oct. 1939) (type); Niekerkshoop (Mus. Exp., Oct. 1939). Great Karoo: Aberdeen (Mus. Exp., Nov. 1935).

From furvus this species is at once distinguished by the more distinct spots on cross veins, stump on second vein, middle position of middle cross vein, more lens- or disc-shaped second antennal joint, etc. The Karoo-specimen differs from the more typical specimens in having more white hair on propleural and prosternal parts, and an entirely whitish plumula.

## Anthrax munroi n. sp.

Body very dark blackish brown to black; head below, pleural parts, especially hinder part, hind margins of tergites on extreme sides below and hind margins of sternites more sienna-brownish to yellowish brownish; proboscis and sometimes slender part of antennae castaneous brownish; femora also castaneous brownish to dark brown, the tibiae and tarsi more yellowish. Vestiture on head and body above dark blackish brown or black; fine hairs on thorax above tinted reddish brown in certain lights; fine ones on occiput dark fulvous or velvety brown; hair in collar greyish white with intermixed black ones; that in mesopleural tuft whitish and black; that on pleurae tinted dark fulvous or reddish brownish to blackish brown, the propleural tuft also dark fulvous

brownish; hairs on sides of tergites comparatively short, not dense, and tuft on sides of tergite I whitish; scaling on frons and face composed of dark and pale ones, the latter more evident anteriorly; fine scaling on thorax sparse, gleaming bronzy, but with dark scales also present; scaling on abdomen composed of fine dark ones and longer, bat-shaped, white ones, the former gleaming greyish or brownish in certain lights, the latter more concentrated on sides and extending right round to below, without any conspicuous patch of silvery scales posteriorly; scaling on venter gleaming greyish yellowish; that on legs dark, gleaming brownish or also greyish yellowish. Wings with the anterior and basal part from about middle of axillary lobe to apex of costal cell infused chocolate-brownish, not sharply marked off, but grading into less dark, more greyish hyaline apical and hinder parts, and with distinct darker spot-like infuscations on all the cross



Text-fig. 141. Side view of hypopygium, dorso-apical view of beaked apical joint, and ventral view of apical part of aedeagus of *Anthrax munroi* n. sp.

veins; veins reddish brownish; second vein with a basal stump; upper cubital branch without a stump; middle cross vein a little beyond middle of discoidal cell; axillary lobe broader than anal cell: plumula whitish. Head with the interocular space a little more than 2 times width of tubercle in 3, and about 3 times in 9; antennae separated by about length of joint 1, joint 2 bead-shaped, broader than long, terminal joint of 3 quite as long as slender part. Legs with 2 or 3 small spines on front femora below, 3 or 4 on middle ones and about 5 or 6 on hind ones below. Hypopygium of 3 (text-fig. 141) with the beaked apical joints compressed along their dorsal part; aedeagal complex with a more or less tridentate process apically below. Dorso-apical angles of terminal lamellae not produced hook-like.

From 2 33 and 1 \( \) (types in the Transvaal Museum and paratype in South African Museum).

Length of body: about  $5\frac{1}{2}$ -7 mm. Length of wing: about  $6-7\frac{1}{2}$  mm.

Locality: Transvaal: Pretoria (Munro, 21 Oct. 1917) (types); Pretoria (Munro, 13 Dec. 1914).

Easily recognized by its small size, brownish infuscated wings and shortish and sparse hair on sides of abdomen. It can only be confused with *nanus*, from which it however differs in not having the wings uniformly infuscated, less dense hair on sides of abdomen, white tuft at base of abdomen, etc. A distinct variety of it appears to occur in the Karoo and this form is characterized as follows:

#### Anthrax munroi var. willowmorensis n.

Body with the ventral parts paler, more yellowish brown and legs on the whole also paler. Vestiture with the hairs on propleural and prosternal parts, pleurae and coxae paler, without any or fewer dark hairs; fine scaling on thorax and scutellum denser, more whitish; bands of white scaling on abdomen above not or scarcely interrupted discally on tergites 2 and 3; scaling on legs paler. Wings with the infuscation slightly more extensive in axillary lobe and anal cell, the apical halves of these cells thus not greyish as in typical form; spot-like infuscation on apical cross vein of discoidal cell wanting or very indistinct; second vein originating opposite middle cross vein and not slightly before it and middle cross vein at about middle of discoidal cell.

From a  $\circ$  of this variety in the Transvaal Museum. Locality: Karoo: Willowmore (Brauns).

#### Anthrax namaënsis n. sp.

Body mainly black; bare part across base of face more brownish; hind margins of last three tergites and posterior sternites in 3 more reddish brownish; hypopygium of of yellowish brownish; femora very dark blackish brown or almost black and tibiae paler, more piceous or reddish brownish. Vestiture with the hairs fairly dense, mainly black above and below, those in propleural tuft, on coxae and venter more dark mauvish brownish in certain lights; some intermixed hairs on humerus and in mesopleural tuft pale or whitish; plumula greyish whitish; dense anterior part of tuft on sides of tergite 1 white; scaling on frons greyish yellowish; fine scaling on thorax above also yellowish, but with much black scaling; hair-like scaling on pleurae greyish brownish, appearing brownish in certain lights; sparse ones on coxae dull yellowish to yellowish brown; scaling on abdomen above mainly black, but with flattened pearly or silvery white ones in a patch on sides across hind margins of tergites 2 and 3, to a lesser extent on sides of 4 and in 3 densely and conspicuously across 5-7 on the last two of which they occupy most of the surface; scaling on venter mostly dark; that on legs dark or black, gleaming graphite-like. Wings greyish hyaline with the base and more or less anterior half infuscated brownish, the infuscation extending irregularly from near apex of anal and axillary cells across basal part of fourth posterior cell, base and anterior part of discoidal cell, across at least basal half of first posterior cell, across base of upper cubital branch and more or less straight across towards end of costal cell, the hind border of this infuscation not well delimited, but hazy and imperceptibly grading into clearer or less tinged apical and hinder part; spots on cross veins distinct though diffuse and with distinct, clearer or less tinged areas before and just beyond spot on middle cross vein and just before spot at base of third posterior cell; veins reddish brown; base of upper cubital branch with a short stump, the vein itself somewhat angularly bent backwards; middle cross vein just before middle of discoidal cell; lower vein of latter somewhat obtusangularly bent outwards near apex of cell; squamae whitish, pale-fringed. Head with the frons in 3 rather broadish; interocular space in 3 broadish, at narrowest part about  $3\frac{1}{2}$  times width of ocellar tubercle; antennae widely separated, space between them distinctly more than length of joint 1, joint 2 not flattened, more transverse, about twice as broad as long, joint 3 with its broad base bulb-shaped, not discoidal as in most other species and relatively small, its slender part (including terminal joint) much longer than base, its terminal joint relatively long, more than half length of slender part. Legs with the fine hairs on front and middle femora below well developed; all the femora with spines below, those on hind ones numerous and well developed. Hypopygium of 3 (not dissected out) with the apical angles of the clasper-like basal parts produced into prominent broadish prong-like processes.

From a 3 in the South African Museum.

Length of body: about 10½ mm. Length of wing: about 12 mm.

Locality: Namaqualand: Kamieskroon (Mus. Staff, Nov. 1936).

The infuscation in the wings of this species resembles that of diffusus Wied. and its various forms, but it may at once be distinguished from these by the less flattened second antennal joints, much smaller and less discoid base of third joints, more extensive infusions in first posterior cell, base of fourth posterior cell and in anal cell and also by the distinctly broader and shorter prongs of hypopygium.

#### Anthrax xerozous n. sp.

Body black; sutural parts of pleurae, hind margins on extreme sides of tergites and those of sternites more castaneous or sienna-brownish; femora very dark or black, their apical parts below slightly more yellowish, the tibiae and tarsi scarcely paler, the front and middle ones however more yellowish. Vestiture on head, thorax, scutellum and abdomen above and below mainly black, but with whitish intermixed hairs in collar, in mesopleural tuft and more numerous white hairs in propleural and prosternal parts; tuft on sides of tergite I white anteriorly; bristly hairs on coxae predominantly black; hairlike scaling on pleurae greyish whitish or yellowish; fine scaling on sides of thorax above and on head gleaming mostly dull golden or sericeous yellowish; scaling behind eyes whitish; fine scaling on disc of thorax mostly black or dark; that on abdomen above composed of dark and greyish yellowish ones, the former gleaming greyish in certain lights; longer, broader, flattened, white scales across hind margins more concentrated in patches on sides and conspicuous on sides of last three tergites; whitish scaling also on extreme sides of tergites below and across hind margins of sternites; scaling on legs dark, appearing brownish or greyish yellowish in different lights. Wings with a chocolatebrownish or coffee-brownish infuscation as shown in pl. i, fig. 5, with the greater part of discoidal cell only obscurely or less tinged than rest of infused part; conspicuous rounded spots on cross veins which are confluent with hind

border of main infuscation; uninfuscated parts of wings greyish hyaline; stumps present on both second vein and upper cubital branch; middle cross vein much before middle of discoidal cell; lower vein of latter zigzag; axillary lobe broader than anal cell; plumula black. *Head* with the interocular space in  $\varphi$  nearly 4 times width of tubercle; antennae separated by about twice length of joint 1, joint 2 disc-shaped, terminal joint of 3 about or a little less than a third length of slender part. *Legs* with numerous spines on all the femora below.

From 2 99 in the South African Museum.

Length of body: about 9-10 mm. Length of wing: about 11½-12 mm.

Locality: South-West Africa: Gaub in Damaraland (Lightfoot, Jan. 1919) (type). Namaqualand: Steinkopf (Mus. Exp., March 1935).

The type-specimen was labelled as Anthrax hessii Wied. by Bezzi. From the latter species it differs, according to Wiedemann's description (p. 289, Aussereurop. Zweifl. Ins., i, 1828) and from specimens of the latter before me, in having a more extensive wing-pattern which is less broken up, no very dense deep golden or yellowish hair-like scaling above, less whitish hair below, etc. From diffusus Wied. it differs in the more extensive infuscation in the wings, more clouded or infused discoidal cell, darker legs, and relatively shorter terminal joint of antennal joint 3. From namaënsis which has a similar infuscation in wings it differs in having more of the discoidal cell infuscated, larger spots on cross veins, much broader and more discoidal base of third antennal joints, more flattened second joints, more pale scaling on body below, etc.

## Anthrax aridicolus n. sp.

This species resembles *xerozous* very closely, but differs from it in the following respects:

Vestiture with distinctly more white hairs or even mainly white in collar region, humeral part and on propleural part above front coxae; genital tuft in ♀ paler fulvous. Wings with a similar type of infuscation, but with the clear spot at base of first posterior cell tending to be fainter, smaller and more obscure; spot-like infuscations on cross veins along margin of main infuscation smaller and with an additional or fourth spot on lower vein of discoidal cell; middle cross vein nearer or at about middle of discoidal cell; axillary lobe comparatively less broad, only a little broader than anal cell; second vein originating just a little in front of middle cross vein. Head with the antennae slightly wider apart, quite twice length of joint 1; terminal joint of joint 3 about a third or fourth length of slender part. Legs with relatively fewer spines on front and middle femora below; tibiae and tarsi tending to be paler, more yellowish, and hind tarsi as pale as the others.

From 4 99 in the South African Museum.

Length of body: about  $7-10\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}-12\frac{1}{2}$  mm. Locality: Namaqualand: Knersvlakte (Mus. Exp., Oct. 1939) (type). Bushmanland: between Springbok and Pella (Mus. Exp., Oct. 1939). Karoo: Calvinia (Mus. Exp., Sept. 1936).

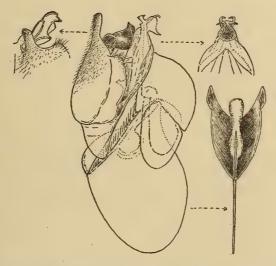
The four spots along hind border of main infuscation characterize this species, and its more extensive infuscation, clouded discoidal cell and tendency for spot at base of upper cubital branch to fuse with main infuscation distinguish it from other forms with four spots described farther on.

### Anthrax diffusus Wied.

(Wiedemann, p. 291, Aussereurop. Zweifl. Ins., i, 1828.)

As there are several species having a similar type of wing-pattern it would be necessary to examine Wiedemann's original type-material in order to establish the true specific identity of this species. By a careful comparison of his description with the various species belonging to this diffusus-group it is, however, possible to eliminate those that obviously do not agree in all respects with his description. By such comparisons and from certain specimens labelled as diffusus by Bezzi it is quite evident that Bezzi confused this species with certain other species of Wiedemann and with certain forms which are most certainly new. There is no doubt that a careful examination of the various specimens referred to diffusus Wied. by Bezzi in his publications on African species (p. 621, Trans. Ent. Soc. Lond., 1911; p. 123, Ann. S. Afr. Mus., xviii, 1921; p. 83, Broteria (Ser. Zool.), xx, 1922; p. 161, The Bombyliidae of the Ethiopian Region, 1924) will prove that he confused other and very similar forms with Wiedemann's species. By a process of elimination and a careful comparison with Wiedemann's description the specimens described below are provisionally referred to diffusus s. str. The species is characterized as follows:

Body black; area below antennae at base of face, head below and sutural parts of pleurae to a variable extent more castaneous or vellowish brownish; hind margins of tergites on extreme sides below and hind margins of sternites and in 3 last sternite also reddish or castaneous brownish to a variable extent; coxae and femora dark blackish brown to castaneous brownish, their lowersurfaces and lower apical part paler, more yellowish or reddish brownish, the tibiae and tarsi paler, more yellowish, but apical parts of tarsi dark. Vestiture above and below and on coxae predominantly very dark blackish brown or black, with however numerous intermixed whitish or grevish white hairs in collar, propleural and mesopleural tufts; anterior dense brush-like part of tuft on sides of tergite I white; tufts on sides of other tergites dense and conspicuous; hairs on venter, especially on sides, with a dark brownish tint in certain lights; genital brush of ♀ yellowish fulvous; short flattened scales on head in front greyish yellowish to pale brownish yellowish; those behind eyes gleaming more whitish; fine, short, hair-like scaling on thorax above mainly black, but with some dull grevish gleaming ones also present on sides and at base; that on abdomen also mainly black, some of them however gleaming greyish yellowish; scaling on venter mainly dark; sparse, longer, hair-like scaling on pleurae gleaming greyish yellowish or brownish yellowish only in certain lights; short, flattened, silvery scales at apex of scutellum; broader, truncated, cuneiform, silvery whitish scales across hind margins of tergites denser on sides, interrupted discally along midline and also laterally on each side, those on sides of last three tergites in  $\Im$  very dense, directed backwards and those on last tergite scarcely or very narrowly interrupted discally, those on sides of last two tergites in  $\Im$  equally dense; the white scaling on tergites extending right round between black tufts; scaling on legs dark, gleaming greyish or brownish, appearing



Text-fig. 142. Side view of hypopygium, dorso-apical view of right beaked apical joint, ventral view of apical process of aedeagus, and postero-dorsal view of basal strut of 3 Anthrax diffusus Wied.

more black on femora above. Wings (pl. i, fig. 7) with the chocolate-brownish to blackish brown infuscation and spots as shown in figure, usually with a constant clear area or window at base of first posterior cell; the three spots usually isolated though the one at base of third posterior cell sometimes tends to fuse with main infuscation; a clear gap however always present in front of spot at base of upper cubital branch; bases of both second vein and upper cubital branch with a stump; middle cross vein at about or just a little before middle of discoidal cell; first posterior cell markedly narrowed apically; axillary lobe very much broader than anal cell; plumula black. Head with the interocular space about  $3\frac{1}{2}$ —4 times width of tubercle; antennae separated by about twice, or a little more, length of joint 1; joint 2 disc-shaped; slender part of joint 3 about 2—2½ times length of terminal joint. Legs with numerous spines on all the femora below, those on hind ones stouter, longer, more or less duplicated basally below. Hypopygium of 3 (text-fig. 142) with the apical part of

basal parts produced prong-like; beaked apical joints with their apical parts slightly recurved outwardly, more or less bidentate, their lower margin flattened and apical part of upper margin finely crenulate; aedeagal complex with a tridentate ventral process apically, two inwardly curved hook-like processes at its apex and a broadish sucker-like structure ventrally; lateral struts and medial basal one well developed, the dorso-basal part of the latter with a broad flange-like wing on each side (lower right figure). Dorso-apical angles of terminal lamellae in last sternite produced into a sharp hook-like process.

In the Transvaal and South African Museums.

Length of body: about  $7\frac{1}{2}$ -11 $\frac{1}{2}$  mm. Length of wing: about 9-13 $\frac{1}{2}$  mm.

Locality: South-western Cape, Eastern Cape, Basutoland and Natal.

The species appears to be very variable and several forms of it which differ in the colour of the vestiture and to a certain extent even in the wing-pattern are present in the collections before me. Some of these merit description even though transitional forms are also found.

#### Anthrax diffusus f. pallidulus n.

These specimens (9 33 and 5  $\varphi\varphi$ ) have certain characters which are fairly constant and which distinguish them from the typical diffusus.

Body with the paler parts even paler castaneous and hind margins of tergites and sternites more broadly pale yellowish reddish; legs on the whole paler, especially tibiae and tarsi. Vestiture with more numerous whitish or strawcoloured hairs in collar, on humerus, in mesopleural tuft, propleural and prosternal parts (the hair on these latter pleural parts even predominantly pale); bristly hairs on front coxae usually with some or numerous reddish golden or reddish fulvous ones; hair on venter predominantly or entirely pale, not dark or black, usually with reddish or pinkish gleams in certain lights; some hairs or bristles in hinder part of white tuft on sides of tergite 1 and sometimes also in the other tufts on sides gleaming reddish or brownish; scaling with distinctly more pale ones in addition to black ones on body above; the fine ones on thorax above, especially on sides, and at base gleaming golden or brownish golden; that on abdomen not predominantly black, but with much pale scaling, yellowish or brownish golden ones more or less transversely across tergites, especially laterally; longish hair-like scaling on pleurae and coxae much paler, gleaming pale reddish or pinkish in certain lights; flattened scaling on venter white; that on legs with more pale ones.

Types of form in South African Museum and paratypes in British Museum. Length of body: about 8–13 mm.

Length of wing: about  $8\frac{1}{2}$ -15 mm.

Locality: South-western Cape, Namaqualand, Karoo, Basutoland and Orange Free State. Types from Montagu (Tucker, Oct. 1919) (holotype) and Murraysburg Dist. (Mus. Exp., March 1931) (allotype).

This form of diffusus appears to frequent the drier and more inland parts of the Union whereas the typical form is met with in the southern and eastern coastal belt.

#### Anthrax diffusus f. hybridus n.

This form may also be considered as merely a racial form of the form pallidulus for it is closer to the latter than to the typical form. From the typical form of diffusus it differs in having more pale hair in collar, on humeral part, in mesopleural tuft, propleural part and on pleurae; in having the hair on venter usually pale-tipped; more pale scaling on body above; distinct yellowish scaling on abdomen above and mainly pale scaling on body below; and in having a distinct fourth spot on lower vein of discoidal cell in many specimens. From the form pallidulus it differs in having more intermixed dark or black bristly hairs in collar, on humerus, in propleural and prosternal parts and in mesopleural tuft; usually no reddish gleaming bristles on front coxae or any of the other coxae; not entirely pale, but pale-tipped, hairs on venter; and above all in the presence of a distinct fourth spot in hyaline part of wings.

From 10 33 and 7 99 (types of form in South African Museum).

Length of body: about  $7\frac{1}{2}$ -11 $\frac{1}{2}$  mm. Length of wing: about 8-13 mm.

Locality: North-western Karoo: Augusfontein near Calvinia (Mus. Exp., Sept. 1947) (types). Koup Karoo: Lammerkraal in Prince Albert Dist. (Mus. Exp., Sept. 1947); Oukloof in Beaufort West Div. (Mus. Exp., Jan. 1949); Koup Siding (Mus. Exp., Oct. 1949). North-eastern Cape: Dreunberg in Albert Dist. (Mus. Exp., Nov. 1939). Namaqualand: Klipvlei near Garies (Mus. Exp., Nov. 1931). Western Cape: Olifants River Valley between Citrusdal and Clanwilliam (Mus. Exp., Nov. 1931); Bulhoek between Klawer and Clanwilliam (Mus. Exp., Oct. 1950); Het Kruis (Mus. Exp., Oct. 1947). Little Karoo: Ladismith (Guillarmod, Sept. 1948).

## Anthrax diffusus f. suffusipennis n.

Still another form of *diffusus* is present in the collections before me. From the typical form of the latter it differs in the following respects:

Body dark chocolate-brownish or dark reddish brown, paler below and on extreme sides below; legs reddish brownish, the tibiae and tarsi more yellowish. Vestiture mainly dark blackish brown, but with numerous intermixed whitish hairs in collar, mesopleural tuft, propleural tuft and front part of front coxae; anterior part of tuft on tergite 1 also white; scaling greyish brownish on head; that on thorax above composed of fine black and dull brownish golden ones; that on abdomen above dark, but gleaming greyish brownish in certain lights; snow-white scaling arranged as in typical form, but more lanceolate in shape; fine hair-like scaling on pleurae gleaming greyish and whitish; scaling on legs also gleaming greyish to greyish brownish. Wings with the infuscation paler, more yellowish or reddish brown, more diffuse, not well marked off, grading

into clearer, more greyish hyaline part, the clearer spots at base of first posterior cell and in front of upper cubital branch hazy; spot-like infuscations on cross veins, especially the three along border of main infuscation, fainter, more diffuse or hazy; second vein tending to originate a little or much in front of middle cross vein. Antennae with the terminal joint of joint 3 relatively much longer than in typical form, the rod-like part about  $1\frac{1}{2}$  times as long as terminal joint.

From 2 33 and 1  $\circ$  (types in the South African Museum and paratypes in the Transvaal Museum).

Length of body: about  $4\frac{1}{2}$ -6 mm. Length of wing: about  $5-7\frac{1}{2}$  mm.

Locality: Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931) (holotype). Southern Karoo: Montagu (Barnard, Oct. 1919) (allotype). Karoo: Willowmore (Brauns, Sept. 1917).

#### Anthrax diffusus f. fuscopurpuratus n.

This is still another distinct form of diffusus which is characterized as follows: Body tending to be more dark blackish brown or dark castaneous than black; pleural parts and venter distinctly dark castaneous or mahogany brownish; hind margins of last two tergites, extreme sides of other tergites and to a certain extent hind margins of sternites paler, more reddish; legs dark piceous or reddish brownish, the tibiae and tarsi more yellowish. Vestiture with the hair in tuft above front coxae, on coxae, pleurae and venter dark mauvish brown in certain lights, even hair on thorax above tinted dark mauvish brown in certain lights; tuft on sides of tergite 1 however whitish; fine scaling on abdomen above dark, but gleaming greyish brownish; hair-like scaling on pleurae also dark, but gleaming greyish, especially on coxae; scaling on venter mostly hair-like, gleaming whitish, especially across hind margins of sternites. Wings with the dark chocolate-brownish infuscation comparatively more extensive than in typical form, with the basal three-quarters or even greater part of discoidal cell included in infuscation; rounded spot at base of third posterior cell confluent with main infuscation, not isolated as in typical form and with only a small clear spot in front of it; rounded spot at apex of discoidal cell also partly attached to main infuscation. Hypopygium of 3 with the upper apical angle of beaked apical joints more rounded and not so sharply pointed as in diffusus s. str.

From 2 33 (type of form in the Transvaal Museum).

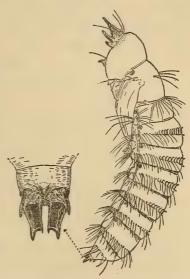
Length of body: about 7-8 mm. Length of wing: about 9 mm.

Locality: South-eastern Cape: Humansdorp (Brauns, 2 Dec. 1932).

The wing-pattern of this form resembles that of xerozous to some extent, but it is slightly less extensive and the middle cross vein is nearer middle of discoidal cell. The dark hair and scaling on pleural parts and the reddish piceous legs also distinguish it.

Anthrax diffusus parasitizes certain solitary bees and wasps. One  $\varphi$ -specimen in the South African Museum collection, which was presented by Mr. R. Dekenah of Cape Town, hatched out of the thimble-like mud-nest which a

certain species of Megachile-bee makes in sandy soil. Its pupal case is shown in text-fig. 143. This pupa is characterized by the presence of six strong, blackish brown, chitinous, cephalic spines projecting forward and by a spinous caudal process at the extremity of the body. The two innermost or medial cephalic spines are the longest and more or less triquetrous in section, their lower and lateral edges sharply carinate and at base of each there is dorsally a small knob-like prominence. The two outermost spines are the shortest and somewhat curved upwards apically. On the facial side of the head there is medially and a little distance away from the cephalic spines a pair of shorter, blackish brown, dentate spines. The body consists of a cephalic segment, a thoracic part bearing the wing- and leg-rudiments, a metanotal segment, seven abdominal segments and the



Text-Fig. 143. Side view of pupal case and dorsal view of its caudal spines of *Anthrax diffusus* Wied.

caudal process. On each side submedially the metanotal segment has a transverse row of 19 long, chitinous, bristle-like filaments. Each of the first 5 abdominal segments has a transverse row of embedded, staple-like rods across the middle discally, decreasing in size and prominence from 1 to 5; each rod has its anterior and posterior ends raised upwards in the form of a spine. On tergite 6 the staple-like rods are represented by a transverse row of single spines on the disc. In addition to the spines on the abdomen, and in line with the hindmost spines, there is a transverse row of bristles on the sides, which on tergite 6 are more conspicuous. A transverse row of similar bristles is also found segmentally on the lateral fold and across the hinder parts of sternites. Similar, but fewer, bristles are also present on head and thorax. Tergite 7 has no spines, but only a transverse row of bristles, mostly on the sides. The caudal process is in the form of two projecting prongs, at the base of each of which there is a dorsal and a ventro-lateral dentate process. Basally below each is another small dentate process. The inner upper margins of the prongs are sharply carinate. Medially above, just in front of the bases of the prongs, this caudal segment also has a single backwardly directed, flattened, dentate process. Length of empty pupal case 16.5 mm. and its breadth about 4 mm.

Another Q-specimen from Natal in the collections of the Transvaal Museum is a teneral form with an almost unrecognizable wing-pattern, but which also appears to belong to this species. This specimen is accompanied by a very similar

pupal case and is labelled as 'parasitical on wasp larva bred from nest'. This label probably refers to a species of mason-wasp, probably a Eumenid, representatives of which are also parasitized by species of *Anthrax* in Europe. This latter pupal skin differs from the one described above in having the caudal prongs slightly longer and the transverse row of tergal spines on segment 5 also single like those on 6.

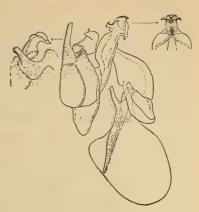
Anthrax tetraspilus n. sp.

(Syn. = hessii Bezzi, nec Wiedemann, p. 123, Ann. S. Afr. Mus., xviii, 1921.)

From Wiedemann's description of hessii (p. 289, Aussereurop. Zweifl. Ins., i, 1828) it is quite evident that the specimens so determined by Bezzi do not belong to that species. According to Wiedemann the costal cell and basal third of wings only are infuscated and in addition there are four spots on cross veins. Moreover the hair-like scaling on body above is denser and more golden to reddish or brownish golden. In view of these differences these specimens, together with other examples, are referred to a new species with the following characters:

Body black; sutural parts on pleurae and venter usually more castaneous brownish; hind margins of tergites on extreme sides and those of sternites fairly broadly paler, more yellowish or yellowish brownish; coxae and femora dark brown, blackish brown to black, the under surfaces and apices of latter usually paler, the tibiae and tarsi more yellowish and apical parts of tarsi dark. Vestiture above and below black; intermixed hairs in collar, propleural and prosternal parts and numerous ones in mesopleural tuft whitish; tuft on sides of tergite 1 mainly white, its hinder part with black hairs; ♀-genital tuft and hooked bristles fulvous to reddish or brownish golden; small, flattened scaling on head gleaming greyish yellowish or yellowish, more whitish behind eyes; fine scaling on thorax and scutellum composed of black and sericeous yellowish, brassy, or even whitish ones, the pale ones more evident on sides, at base and in form of two indistinct discal bands; hair-like scaling on pleurae mainly greyish yellowish to whitish; fine scaling on abdomen composed of flattened greyish yellowish to brownish gleaming ones and black hair-like ones, the latter more or less arranged transversely across bases and along middle of tergites; broader, flattened, snow-white scales present on sides, but also as two submedial patches on tergites 2-5, especially in 2, those on sides extending right round between black tufts and those on sides of 5-7 in 3 and 6 and 7 in 2 dense and silvery, leaving only a narrow discal part free; scaling on venter mainly whitish; that on legs dark or black on femora above, gleaming greyish in certain lights. Wings with the chocolate- or coffee-brownish infuscation as shown in pl. i, fig. 6, with a constant, large clear gap or spot at base of first posterior cell and greater part of or at least apical half of discoidal cell usually less tinged or even clear; four more or less distinct spots present, of which one on lower vein of discoidal cell is characteristic; stumps present at bases of second vein

and upper cubital branch; latter with a fairly deep loop; middle cross vein just or a little before middle of discoidal cell; lower vein of latter with a sharp bend; axillary lobe much broader than anal cell; plumula brownish fulvous to black. Head with the interocular space about 3-3½ times width of tubercle in 3 and about  $4-4\frac{1}{2}$  times in  $\mathbb{Q}$ ; antennae separated by about 2 times length of joint 1; foint 2 disc-shaped; terminal joint of 3 about half or a little less than half length of slender part. Legs with some spines on front femora below and numerous ones on middle and hind ones. Hypopygium of 3 (text-fig. 144) much like that of diffusus, but recurved apical parts of beaked apical joints much longer, more spine-like, not bidentate apically; sucker-like ventral structure below



Text-fig. 144. Side view of hypopygium, dorso-apical view of right beaked apical joint, and ventral view of apical part of aedeagus of Anthrax tetraspilus n. sp.

apical part of aedeagal complex longer. Dorso-apical angles of terminal lamellae not produced spine-like; their lower part without hairs, only a brush present on outer apical aspect.

From  $3 \ 33$  and  $9 \ 99$  (types in the South African Museum, paratypes in the British Museum and Transvaal Museum).

Length of body: about  $7-11\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}-13\frac{1}{2}$  mm.

Locality: Namaqualand: O'okiep (Lightfoot, Sept. 1890) (types); Kamieskroon (Mus. Exp., Sept. 1930); Gifberg near Vanrhynsdorp (Sept. 1911). West Cape: Pakhuis Pass near Clanwilliam (Mus. Exp., Sept. 1936 and 1942); Wupperthal, Krakadouw Pass (Mus. Exp., Sept. 1936). Ceres Karoo: Ceres (Turner, 1 Nov. 1924). Karoo: Willowmore (Brauns, 20 Dec. 1923).

Easily recognized by the four constant spots in wings. It resembles diffusus f. hybridus, but differs in having entirely dark hair on venter, less numerous pale scaling on abdomen above, less widely separated antennae, more recurved end of second vein and having spine-like apices to beaked apical joints.

## Anthrax rhodesiënsis n. sp.

The wing-pattern of this large species also resembles that of species and forms belonging to the *diffusus*-group. There are, however, important differences which distinguish it from the others.

Body black; legs dark blackish brown, the tibiae and tarsi slightly paler. Vestiture predominantly black; anterior part of collar mostly white and with numerous white hairs also in propleural and mesopleural tufts and with anterior part of tuft at base of abdomen also white; scaling on frons whitish and greyish

yellowish; that behind eyes white; fine hair-like scales on body above mainly black and those below also black; silvery white scales on abdomen denser and longer on sides, more or less separated discally on hind margins of tergites 2-5 and also submedially on each side by more slender and shorter grevish scales and medially by black or dark ones; silvery white scaling dense and conspicuous on sides of last two tergites and the white scaling on all the tergites does not extend right round to venter; scaling on legs dark or black. Wings (pl. i, fig. 8) with the dark chocolate-brown infuscation occupying more or less oblique basal half, leaving only an obscure clear spot at base of first posterior cell; isolated spot-like infuscation at apex of discoidal cell smaller than rounded spots at bases of third posterior and second submarginal cells, the former spot confluent with main infuscation; a small or minute spot also indicated on lower vein of discoidal cell; bases of both second vein and upper cubital branch with a stump; middle cross vein a little before middle of discoidal cell; axillary lobe much broader than anal cell; plumula black. Head with the frontal furrow shallow; interocular space in 2 about 4 times width of tubercle; antennae separated by a little more than 2½ times length of joint 1; joint 2 disc-shaped; terminal joint of 3 a little less than a third length of slender part. Legs with spines on all the femora, those on hind ones strongly developed and more or less duplicated basally.

From a Q in the South African Museum.

Length of body: about 11½ mm. Length of wing: about 13 mm.

Locality: Southern Rhodesia: Salisbury (Cuthbertson, 15 Sept. 1939).

## Anthrax eurypterus n. sp.

This very striking and handsome black species is characterized as follows: Body black, the pleural sutures more dark brownish; legs very dark piceous

or reddish brown, the tibiae and tarsi slightly paler; integument of scutellum, abdomen above and pleurae somewhat shiny. Vestiture with the hair on body above and below predominantly black, only some hairs in anterior part of collar, some intermixed ones in mesopleural tuft and anterior part of dense brush-like tuft on sides of tergite 1 white; black hairs on sides of abdomen very dense and shaggy, especially in 3; scaling on frons and face sparse, greyish yellowish; fine scaling on thorax and abdomen above as well as that on body below black; hind margin of tergite 2 on sides with silvery white scales which do not extend right round to inflexed part, and extreme sides of tergite 5 and entire 6 and 7 (excepting only middle part) in 3 with elongated, flattened, very brilliantly shining, silvery white scales which are very conspicuous and transversely arranged; scaling on legs mainly black, gleaming graphite-like. Wings remarkably broad in relation to length, shining, iridescent, infuscated very dark chocolate-brownish, more or less dimidiately so in 3 and more extensively so in 4 (pl. i, fig. 4); infuscation in 3 extending from apices of axillary and anal

cells obliquely across basal part of fourth posterior cell, across basal half and more or less anterior apical half of discoidal cell, across about basal third of first posterior cell obliquely across to costal cell; infuscation in Q as shown in pl. i, fig. 4, also extending from apices of axillary and anal cells, but also including to a variable extent greater part of fourth posterior cell and almost basal half of third posterior cell and entire discoidal cell; darker spots present on all the cross veins in both sexes and without any distinct clearer spots or areas in the infuscated part excepting only the greyish prediscoidal spot; veins dark reddish brown; discoidal cell markedly broad and shortish, distinctly dilated apically, both its upper and lower veins bent outwards near apex and the apex itself somewhat truncate; middle cross vein before middle of discoidal cell and more or less opposite bend at base of third posterior cell; upper cubital branch with a distinct stump at its basal bend; squamae brown, brown-fringed; halteres and their knobs brown. Head with the interocular space in front of ocellar tubercle at narrowest part about 2 times width of tubercle in 3 and 3 times in 9; frons broadish; antennae rather wide apart, space between them about 2-2½ times length of joint 1; joint 2 short, flattened, disc-shaped and very much broader than long; broad base of joint 3 conspicuously dilated, especially in  $\mathcal{Q}$ , only a little shorter than slender part in ♂, but longer in ♀ and terminal joint of slender part very short and small. Legs with about 3-5 or even 9 spines on middle femora below and about 6-10 on hind ones; front and middle tarsi markedly shorter than tibiae, but hind ones in 3 subequal in length to tibiae but in  $\mathcal{P}$  only a little shorter than tibiae; scales on legs rather longish and well developed. Hypopygium of 3 (parts visible in undissected state) with the apical angles of the pair of clasper-like basal parts not produced prong-like as in 33 of the diffusus- and pusillus-sections.

From a 3 and 2 in the South African Museum.

Length of body: about  $7-7\frac{1}{2}$  mm.

Length of wing: about 7½ mm.

Locality: Koup Karoo: between Klaarstroom and Prince Albert (Mus. Exp., Oct. 1952) (holotype). Griqualand West: Vryburg (Mus. Staff, Oct. 1939) (allotype).

A very characteristic and striking species characterized by its broadish, and more or less dimitiately infuscated wings, shortish and dilated discoidal cell, posterior patch of brilliant silvery white scales in 3, predominantly black hair on body, etc.

## Anthrax pusillus Wied.

(Wiedemann, p. 318, Aussereurop. Zweifl. Ins., i, 1828; Bezzi, in part, p. 123, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 166, The Bombyliidae of the Ethiopian Region, 1924.)

This species is a representative of a number of species dealt with in the following pages and which have a similar type of wing-pattern. It is characterized as follows:

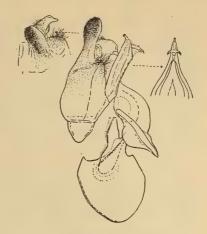
Body black; lower parts sometimes more castaneous brownish; hind margins of tergites on extreme sides below and at hinder part of body (sometimes all tergites) and in 3 sides of last two tergites and hind margins of sternites yellowish reddish to a variable extent; femora yellowish brown, dark, or even black, their lower surfaces and apical parts usually paler, the tibiae and tarsi more yellowish. Vestiture above and below mainly black, but with numerous whitish or strawcoloured hairs in collar, on humerus, propleural and prosternal parts and in mesopleural tuft; hairs in propleural and prosternal tufts and on front coxae sometimes with a fulvous, brownish fulvous or mauvish tint; tuft on sides of tergite I snow-whitish, but with black hairs across its hind margin; scaling on head and fine ones on thorax and scutellum above greyish, greyish yellowish, that on latter two parts even dull yellowish, white on apex of scutellum; hairlike scaling on pleurae and coxae gleaming greyish whitish, greyish yellowish to pale brownish yellowish in certain lights; scaling on abdomen above dense. mostly dull ochreous yellowish or greyish yellowish, sometimes inclining to whitish, but with very fine hair-like dark or black ones also present, especially discally across basal part of tergite 2; flattened, silvery white scaling mostly concentrated on sides, becoming less broadly interrupted discally from tergite 2 to apex, very dense and scarcely interrupted discally on last three segments in 3 and last two in Q where these scales are more brilliant; scaling on venter grevish yellowish or whitish, that on extreme sides sometimes dull ochreous yellowish; scaling on legs gleaming dull ochreous yellowish, pale yellowish brownish to grevish whitish. Wings with the anterior basal part infuscated vellowish brownish, coffee-brownish to chocolate-brownish, the infuscation extending obliquely across from about middle of axillary lobe, across basal vein of fourth posterior cell, across base of discoidal cell to spot on middle cross vein and then across basal part of first submarginal cell to near apex of costal cell, sometimes however with a slight cloudiness also in basal part of first posterior cell; rest of wings vitreous hyaline or clear, but usually with faint or more distinct spot-like infuscations at bases of third posterior cell and upper cubital branch and occasionally with a faint indication of a spot also on apical cross vein of discoidal cell; base of upper cubital branch usually with a stump; middle cross vein usually a little before middle, sometimes at middle, of discoidal cell; lower vein of discoidal cell usually with a subangular bend hindwards; axillary lobe much broader than anal cell; plumula whitish or brownish. Head with the interocular space about  $2\frac{1}{4}$ -3 times width of tubercle in 3 and about 3-4 times in ♀; antennae separated by a little more than length or sometimes even twice length of joint 1; joint 2 disc-shaped; slender part of joint 3 relatively short, about 1\frac{1}{2}-2 times as long as terminal joint, that of of the shorter. Legs with spines on all the femora below. Hypopygium of of (text-fig. 145) with the apical part of basal parts produced prong-like, these rather broadish; beaked apical joints as in figures; aedeagal complex with a tridentate ventral process apically, without a sucker- or disc-like extension below. Dorso-apical angles of terminal lamellae produced spine-like.

In the South African Museum, Transvaal Museum and Commonwealth Institute.

Length of body: about 5-8½ mm. Length of wing: about 6-10 mm.

Locality: Koup Karoo, Moordenaars Karoo, Tankwa Karoo, Great Karoo, Eastern and North-eastern Karoo, Nieuveld Karoo, Namaqualand and Griqualand West.

Easily recognized by its half-infuscated wings and two spots on cross veins in hyaline part. This species is very widely distributed in the drier parts of South Africa and is variable in size and the extent of its wing-pattern which sometimes resembles that of diffusus. From forms of the latter it may at once be distinguished by the presence of much pale



TEXT-FIG. 145. Side view of hypopygium, dorso-apical view of right apical joint, and ventral view of apical part of aedeagus of & Anthrax pusillus Wied.

or dull yellowish scaling on abdomen, more conspicuous reddish hind margins of posterior tergites and of the sternites, less widely separated antennae, absence of or a much fainter spot on apical cross vein of discoidal cell, etc.

## Anthrax simillimus n. sp.

A single 3-specimen in the South African Museum collections before me so closely resembles pusillus that it may almost be considered as representing an extreme variety of that species. The differences in its wing-characters are however so obvious that it deserves a separate specific rank. It differs from pusillus in the following respects:

Head with the antennae closer together, the space between them scarcely or only about as wide as length of antennal joint 1; joint 2 slightly longer, less flattened or disc-shaped; slender part of joint 3 distinctly longer than in pusillus, at least twice length of broad base, its terminal joint distinctly shorter nearly a third length of slender part and not only a little shorter than slender part as in 3 of pusillus. Wings with the infuscation less extensive, extending from a little less than (or about) half of axillary lobe across to a point on costal cell which is distinctly a little short of level opposite base of upper cubital branch (in pusillus it is opposite); first submarginal cell is clear basally, not extensively infused in basal part; only one faint spot-like infusion present on basal cross vein of third posterior cell which is much fainter, without any spot at base of second submarginal cell; base of latter slightly less at right angles and without a stump; costal cell relatively shorter; apical cross vein of discoidal cell relatively longer and more oblique and the backward bend on lower vein of latter cell less sub-

angular; base of first basal cell and also just before base of first submarginal cell with distinct clear or less infuscated spots or areas, not evident in *pusillus*. *Vestiture* very similar, but the bands of white scales across hind margins of tergites 2–3 on sides and across last three distinctly duller or more cretaceous whitish, not silvery; fine scaling across basal part of tergite 2 more yellowish or greyish, not black, the latter arranged more across the middle and apparently there are more pale scales on tergites above than in *pusillus*; hairs and hair-like scales on propleural and pleural parts on the whole paler, more whitish or with fewer dark elements.

Length of body: about 8 mm. Length of wing: about 9½ mm.

Locality: Koup Karoo: Oukloof in the Nieuveld Escarpment (Beaufort West Div.) (Zinn and Hesse, Mus. Exp., Jan. 1949).

A  $\mathcal{Q}$ -specimen (with a body-length of  $9\frac{1}{2}$  mm. and a wing-length of about 10 mm.) in the South African Museum from the Great Karoo (Murraysburg Dist. (Mus. Staff, March 1931)) which has a very similar wing-infuscation and venation, similar dull cretaceous-white scaling on abdomen, similarly shaped third antennal joints with a relatively longish slender part and similar hairs and hair-like scales on pleural parts probably represents the  $\mathcal{Q}$  of this species. It however has the antennae as widely separated as in  $\mathcal{Q}$  pusillus and its costal cell not so short as in  $\mathcal{S}$ .

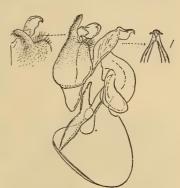
### Anthrax caffer n. sp.

(Syn. = pusillus Bezzi, in part, nec Wiedemann, p. 123, Ann. S. Afr. Mus., xviii, 1921.)

The wing-pattern of this species is almost identical with that of the var. leucogaster Meig. of the Palaearctic species trifasciatus Meig. as described and figured by Sack (p. 530 and pl. 22, fig. 4, Abh. Senckenb. Natur. Ges., 30, 1909) and by Engel (pp. 435-6 and pl. viii, fig. 108, Die Fliegen d. Pal. Reg., lief. 99, 1936). When compared with the descriptions of these authors the specific similarity is also very close. These specimens have however no tufts of white hair on extreme sides of the tergites below, the clear gap or indentation in front of infuscation on middle cross vein is less extensive, and the hypopygium of 3 as figured by Sack and Engel appears to differ in not having a ventral tridentate extension apically below aedeagal complex. There is however a possibility that these specimens merely represent a South African form or variety of trifasciatus or leucogaster. Only a careful comparative study of both Palaearctic and Ethiopian species of Anthrax will however settle this point. In view of the fact that few, if any, Palaearctic species of Bombyliidae are found so far south, these insects are provisionally referred to a new species. One &-specimen (from Hex River, 10 Jan. 1882) was questionably labelled as 'Anthrax pusilla' by Bigot and was subsequently referred to as such by Bezzi without further verification. The characters of this species are as follows:

Body mainly black; hind margins of tergites on extreme sides below, or even sides below (3) and hind margins of sternites (especially 3) and in 3 also hind margins and sides of last few tergites reddish brownish or sienna-brownish; femora black or dark reddish brown, their lower surfaces sometimes paler, the tibiae and tarsi paler. Vestiture mainly black; hairs in anterior part of collar, on humerus and numerous hairs in front of wing-bases and intermixed ones in propleural tuft or even entire tuft and a few on coxae pale or whitish; those in propleural tuft sometimes with a slight fulvous tint; hair on at least basal half of venter gleaming pale sericeous whitish or yellowish, not black as in pusillus;

white tuft on sides of tergite 1 usually with some black hairs in posterior part; fine scaling above mostly greyish, greyish yellowish to ochreous or ochreous golden, but with numerous fine black ones, especially dense on abdomen above; sparse, longish, hair-like scaling on pleurae whitish, greyish to fulvous; those on coxae more sericeous whitish; snow-white scaling on last three tergites in 3 and last two in 2 dense and not silvery as in pusillus and that across hind margins and sides of other tergites extending right round between black tufts, some being long and almost hair-like and those discally usually broken up into patches; scaling on venter mostly pale or whitish; that on femora appearing dark above and greyish whitish below. Wings with the dark brown, blackish brown, or dark choco-



TEXT-FIG. 146. Side view of hypopygium, dorso-apical view of right beaked apical joint, and ventral view of apical part of aedeagal process of danthrax caffer n. sp.

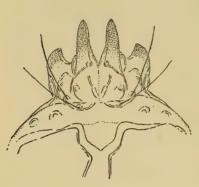
late-brownish infuscation and spots as shown in pl. i, fig. 9, with the infuscation not extending diffusely beyond a point halfway between discal spot and base of upper cubital branch as in pusillus, with the hind border of infuscations also more irregular or jagged than in the latter and with a constant though variable clear gap or indentation in front of large discal spot which is not present in pusillus; two spots in hyaline part also usually larger than in latter species; base of upper cubital branch with or without an indication of a short stump; middle cross vein at about or a little before or even slightly beyond middle of discoidal cell; plumula brownish or blackish. Head with the interocular space about  $2\frac{1}{2}$  times in 3 and quite 3 times in 2 the width of ocellar tubercle; slender part of antennal joint 3 usually only a little longer than its terminal joint, but sometimes quite  $1\frac{1}{2}$  or more times as long as the latter in some  $\Im$ . Legs with spines on all the femora, usually with no more than 8 in outer row on hind ones. Hypopygium of 3 (text-fig. 146) differs from that of pusillus in having the apical prongs of basal parts much narrower, more slender and without very dense and recurved brush-like hairs; beaked apical joints more flattened, leaf-like, their apical beak recurved and their upper margin angularly extended to a variable degree; apical part of aedeagal complex with a ventrally directed, more or less tridentate, process, but aedeagus itself does not project beyond the process as in pusillus. Dorso-apical angles of terminal lamellae also produced spine-like.

From 25 33 and 24 99 (types in the South African Museum, paratypes in the Commonwealth Institute, Albany, British and Transvaal Museums).

Length of body: about 4-8 mm. Length of wing: about  $4\frac{1}{2}-9\frac{1}{2}$  mm.

Locality: South-western and Western Cape, Koup Karoo, Little Karoo (holotype from Rust-en-Vrede near Oudtshoorn (Mus. Exp., Oct. 1951) and allotype from Ladismith (Guillarmod, Sept. 1948)), Eastern and North-eastern Cape, Karoo, Namaqualand, North-western Cape, Griqualand West, Orange Free State, Basutoland, Transvaal and South-West Africa.

From the regions given above it is evident that this species is widely distributed, almost all over South Africa. This species also appears to be very



Text-fig. 147. Dorsal view of cephalic end of pupal skin of Anthrax caffer n. sp.

variable with regard to the depth and clearness of the clear indentation in front of the discal spot, in the distinctness of the two spots in hyaline part and in the presence or absence of a distinct spot-like infuscation at apex of discoidal cell. In the 3 of some forms the clear gap in front of discal spot even extends to costal cell. Some specimens have only indications of spots on cross veins and the wings have some resemblance to those of the North African fuscipennis Ric. This species is parasitic in the nests of bees belonging to the genus Ceratina, Dr. S. Skaife of Cape Town has bred of it from the nests of Ceratina nasalis Fr. The cephalic end of the pupal skin of a pupa of this species is shown in text-figure 147.

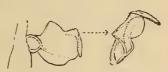
Anthrax triatomus n. sp.

(Syn. = trimaculatus Bezzi, nec v. d. Wulp, p. 123, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 163, The Bombyliidae of the Ethiopian Region, 1924.)

Of this species Bezzi labelled and referred a  $\circ$  to trimaculatus a species which v. d. Wulp described from Timor in 1868. As Macquart described a Brazilian species under the same name in 1818, v. d. Wulp's species was subsequently renamed as tripunctata. The latter species was later on considered to be synonymic with the Oriental distigma Wied. (p. 309, Aussereurop. Zweifl. Ins., i, 1828). If the identity of these two species be accepted we have only to compare this species with distigma. This species also appears to be very near nigerrimus which Bezzi (p. 164, The Bombyliidae of the Ethiopian Region, 1924) described from East Africa. Compared with these two species and the preceding one the new species is characterized as follows:

From caffer it differs in having the infuscation in wings (pl. i, fig. 10) distinctly more broken up; the clear gap in front of large discal spot much more extensive, extending more broadly right across to costal cell, even more so in  $\delta$ ; in having no distinct longish prolongation in marginal cell beyond discal spot; in the presence of three constant and large spots on cross veins; in a distinct whitish

spot near base of first basal cell; in having more numerous whitish or pale hairs on coxae; a white plumula; pale or white hairs on greater part of or entire venter; and a tendency to have more ochreous pale scaling on abdomen above. Hypopygium of 3 also very much like that of caffer, but the dorsal margin or edge of beaked apical joints (text-fig. 148) is not more or less continuously arched, but distinctly more deeply indented, its basal part thus triangularly projecting and the beak or tooth less recurved.



TEXT-FIG. 148. Side and dorso-apical views of right beaked apical joint of hypopygium of 3 Anthrax triatomus n. sp.

From distigma and nigerrimus it appears to differ in not having extensive black hair in propleural tuft and on venter; in having more brownish or ochreous golden scaling above; fine black scaling on abdomen not occupying most of the discal part; scaling on venter mostly pale or whitish; wings with a more conspicuous whitish streak near base of first basal cell, the infuscation does not reach hind border of axillary lobe as in nigerrimus; first posterior cell tending to be more broadly open than in distigma; plumula whitish and not black; and according to Engel's figure of the hypopygium of distigma, the apical prongs of basal parts of this species distinctly more slender.

A careful comparison of specimens of distigma, nigerrimus and triatomus, in all three species of which there is a clear gap in front of discal spot and three spots on cross veins in hyaline part, is necessary to establish beyond doubt that these three species are not merely representatives of one very variable and widely distributed species. The material from Willowmore which Engel (p. 429, Die Fliegen d. Pal. Reg., lief. 99, 1936) referred to distigma is probably referable to triatomus.

From 15 33 and 7 99 (types in the South African Museum, paratypes in British, Transvaal, and Natal Museums, and in the Commonwealth Institute).

Length of body: about  $4\frac{1}{2}$ -9 mm. Length of wing: about 5-10 mm.

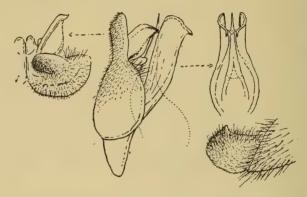
Locality: Eastern and South-eastern Cape: Willow River, Cockscomb near Uitenhage (Mus. Exp., Oct. 1938); East London (Lightfoot, July 1914); Katberg (Turner, 11–18 Feb. 1933); Goshen near Cathcart (Mus. Exp., March 1954) (holotype); Gardiner's Drift near Adelaide (Mus. Exp., March 1954) (allotype); Port St. John (Swinny, Nov. 1916). Natal: Greytown (Mackie, 20 Oct. 1931); Weenen (Thomasset, May 1924); Pietermaritzburg (Akerman, 1918). Zululand: Mfongosi (Jones, May 1916). Little Karoo:

Schoemanspoort (Mus. Exp., Oct. 1938); Slypsteen Mtn., Towerwaterkloof, Willowmore Div. (Mus. Staff, 24 Oct. 1938). Namaqualand: Godous (Goodhouse) (Mus. Exp., Nov. 1936).

#### Anthrax sticticalis n. sp.

Though superficially resembling *caffer*, this species differs from the latter in the following respects:

Body with the hind margins of sternites and extreme sides of tergites below not or less extensively pale or yellowish. Vestiture with the hairs in propleural tuft, prosternal part, on pleurae and on venter mainly very dark or black; bristly hairs on sides of abdomen comparatively less dense, not so tufty; white scales behind eyes more or less concentrated in three patches; white and pale



TEXT-FIG. 149. Side view of hypopygium, apical view of right beaked apical joint, ventral view of aedeagal process, and side view of left terminal lamella of 3 Anthrax sticticalis n. sp.

scales on abdomen above more ovate in shape, becoming triangular posteriorly, those on sides extend right round to ventral part; pale scaling on venter tending to be more concentrated in patches or tufts on sides of sternites; pale scaling on abdomen above, other than white ones, more developed than in caffer; silvery tomentum or pruinescence on head in front much more developed than in most species, and usually in form of four spots down each side of frons and face along margins of eyes and with a small tuft of white or silvery scales on each. Wings with the dark blackish brown infuscation more distinctly, sharply and more jaggedly marked off from hyaline part than in caffer, the infuscation abruptly and truncately ceasing at about middle of marginal cell and the clear gap in front of the slightly projecting and more distinctly quadrate infuscation on middle cross vein either clearly defined or small; only one distinct and welldefined spot in hyaline part at base of third posterior cell, not two or three spots as in caffer; four more or less constant subopaquely yellowish whitish spots present in main infuscation, in costal cell before cross vein, one at base of marginal cell, one at same level in first basal cell and a slightly larger one in apical

part of second basal cell respectively; first posterior cell more parallel-sided than in caffer; apical part of second vein and upper cubital branch tending to be more sinuate; middle cross vein tending to be more distinctly beyond middle of discoidal cell; longitudinal crease or fold in discoidal cell less prominent and usually shorter than in caffer. Head with the antennae closer together, distinctly less than twice length of joint 1; joint 2 even more flattened and lens-shaped; broadened basal part of 3 slightly larger, more conspicuously globular and sometimes excavated below, longer than slender part, the terminal joint very short. Hypopygium of 3 (text-fig. 149) differs from that of caffer in having the apical prongs of basal parts broader and relatively shorter; beaked apical joints flattened, much less or scarcely recurved apically, and differently shaped; aedeagal process entirely different and lamp-chimney-shaped. Dorso-apical angles of terminal lamellae less sharply produced or hook-like.

From 13 33 and 6 99 (types in the South African Museum and paratypes in the Commonwealth Institute).

Length of body: about  $4\frac{1}{2}$ -6 mm. Length of wing: about 5-6 mm.

Locality: Tankwa Karoo: Waterval on the Tankwa River (Mus. Exp., Nov. 1952) (types). Moordenaars Karoo: Lammerfontein (north-west of Laingsburg) (Mus. Exp., Oct. 1952). Koup Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Rooinek Pass—Seven Weeks Poort (Mus. Exp., Oct. 1952); Koup Siding (Mus. Exp., Oct. 1952). Little Karoo: Vanwyksdorp (Mus. Exp., Oct. 1937). North-western Karoo: Augusfontein near Calvinia (Mus. Exp., Sept. 1947). Namaqualand: Van Rhyn's Pass (Jooste, Nov. 1931, and Cockerell, 11–21 Nov. 1931).

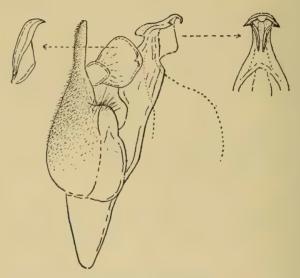
The silvery spots of tomentum on sides of frons and face, the subopaquely yellowish whitish spots in infuscated part of wings, the markedly short terminal joint of joint 3 and the hypopygium of 3 distinguish this species from allied species of *Anthrax*.

# Anthrax candidulus n. sp.

This handsome species resembles triatomus and nigerrimus Bezz., but its wing-pattern distinguishes it from all other known South African species.

Body black above; face just below antennae, pleurae and venter to a variable extent castaneous brownish to dark brownish; hind margins of sternites scarcely paler than venter; femora blackish brown, dark reddish brown, or black, the tibiae and tarsi much paler, yellowish. Vestiture almost entirely black above and below, only the hairs in front part of collar, on humerus, some in tuft in front of wing-bases and those in anterior part of tuft on sides of tergite 1 white; genital tuft of  $\mathfrak P$  fulvous; six silvery pruinescent spots present on each side of frons and face along margins of eyes; scaling on head appearing mainly dark, but gleaming brownish or greyish, that present on silvery pruinescent spots above level of antennae and along sides of face distinctly more yellowish whitish or white; fine hair-like scaling above, especially on abdomen, predominantly

black, but with some sparse greyish-gleaming ones on sides of thorax and white ones at apex of scutellum; sparse hair-like scaling on pleurae and coxae gleaming greyish whitish to brownish golden in certain lights; white scaling on abdomen above only dense and conspicuous on sides of tergite 5 and more extensive on sides of 6 and 7 in 3 and to a lesser extent in  $\mathfrak{P}$ ; rest of white scaling in form of four small white tufts across hind margins of 2 and 3 and two submedial ones on 4 and 5; fine scaling on venter mostly black, but patches of flattened white scales present on sides of sternites and extreme sides of tergites below; scaling on legs dark, gleaming graphite-like or greyish. Wings (pl. i, fig. 11) with a very characteristic blackish brown or black pattern and with the clear parts iridescent and vitreous hyaline; large infuscation at base of upper cubital branch extending arcuately into apical part of marginal cell and spot



Text-fig. 150. Side view of greater part of hypopygium, dorsal view of beaked joint, and ventral view of apical part of aedeagal process of & Anthrax candidulus n. sp.

in apical part of second submarginal cell very characteristic; spot at base of third posterior cell sometimes confluent with dentate infuscation on middle cross vein; clear gap in front of latter sometimes interrupted by a continuation of basal infuscation along first basal cell to join that on middle cross vein; spot at apex of discoidal cell usually extending down posterior vein between second and third posterior cells; stump at base of second vein markedly long; base of upper cubital vein without any or with only a short stump, the vein itself rather sinuous; middle cross vein a little beyond middle of discoidal cell; apical cross vein of latter cell markedly short, shorter than in any other species; axillary lobe broader than anal cell; plumula dark or black. Head with the interocular space about  $2-2\frac{1}{2}$  times width of tubercle in 3 and about 3 times in 9; antennae

separated by a little less than or about twice length of joint 1; joint 2 disc-shaped; slender part of 3 only about  $1\frac{1}{2}$  times as long as terminal joint. Legs with only a few spines basally below on front femora, numerous ones on middle and hind ones where they occur in more or less two rows. Hypopygium of 3 (text-fig. 150) very much like that of caffer, but with the beaked apical joints more broadly leaf-shaped and flattened, considerably broader across middle; aedeagal complex and middle part of aedeagal part also similar. Dorso-apical angles of terminal lamellae less sharply hook-like than in caffer.

From 4 33 and 2 99 (types in the British Museum and paratypes in the Transvaal and South African Museums).

Length of body: about 8-9 mm. Length of wing: about  $8\frac{1}{2}$ -10 mm.

Locality: Eastern Cape Province: Katherg near Fort Beaufort (Turner, Dec. 1932) (types); Resolution, Albany Dist. (Walton, 18 Oct. 1927).

### Anthrax dimidiatipennis n. sp.

This and the following species, though apparently indistinguishable from hemimelas Speis. as far as the dimidiate wing-pattern is concerned, are nevertheless provisionally described as two new and separate species. The main reason for doing so is that at present I have no means of establishing the true specific identity of hemimelas which Speiser described (p. 78, Kilimandjaro-Meru Exp. (1905–6), ii, Abt. 10, 1910) from a Q-specimen obtained in the lowlands of Meru in East Africa. At the time the latter species was described no other African forms with an identical wing-pattern were known until Bezzi (p. 622 and pl. L, fig. 3, Trans. Ent. Soc. Lond., 1911) described a species homogeneus from Nyasaland. On the basis of similarity of wing-pattern Bezzi subsequently (p. 124, Ann. S. Afr. Mus., xviii, 1921, and p. 166, The Bombyliidae of the Ethiopian Region, 1924) referred his species as a synonym of hemimelas. At the same time he labelled one of the above specimens, a 9 from Zululand, as hemimelas. In the collections before me there are however two other specimens which have an identical wing-pattern but which differ from the specimen labelled as hemimelas in certain important characters which relegate them to a separate specific status. The fact that there are apparently more than one African species with a similar type of dimidiate wings thus raises the problem of the true specific identity of hemimelas s. str., and as neither Speiser nor Bezzi paid much attention to characters other than the characteristic wing-infuscation it is impossible to compare the insects before me with hemimelas or homogeneus unless the actual types be examined. The discovery of separate species having this same type of wing-infuscation also raises the suspicion that the various specimens from various parts of Africa which Bezzi and Curran (p. 40, Bull. Amer. Mus. Nat. Hist., lvii, 1927) referred to Speiser's hemimelas may not all belong to that species.

Body black; lower parts tending to be more dark castaneous, but without any reddish or paler hind margins to sternites; femora dark reddish brown, the tibiae and tarsi slightly paler, more yellowish. Vestiture predominantly black,

with only the hairs in front part of collar, on humerus, intermixed ones in tuft in front of wing-bases and in more than anterior half of tuft on sides of tergite I white; plumula also white; scaling on head in front greyish whitish; fine scaling on thorax above composed of black ones more or less in bands and pale greyish yellowish or greyish ones on sides, across base and between black bands; scaling across hind margin of scutellum more whitish; fine scaling on abdomen above black; flattened, snow-white scaling more distinct as patches on sides of hind margins of tergites 1, 2 and 5, and densely on sides of last two tergites, those on sides of 5 long and tuft-like, the pale ones discally across hind margins only indicated as scattered greyish ones; sparse hair-like scaling on pleurae and coxae gleaming dull brownish golden; scaling on venter mostly blackish; that on legs dark, gleaming greyish brownish. Wings with more or less basal half dark blackish brown to very dark chocolate, the infuscation extending from very near apex of axillary and anal cells obliquely and slightly irregularly across to near apex of costal cell, thus including base of fourth posterior cell, almost basal half of discoidal cell, middle cross vein area and bases of first submarginal and marginal cells, with a tendency for a slight clear spot or gap to be sometimes present in front of middle cross vein; rest of wing vitreous hyaline and without any spots on cross veins in clear part; basal stump of second vein long; stump at base of upper cubital branch very short or rudimentary; middle cross vein at about middle of discoidal cell; anal cell acute apically, much narrower than axillary lobe. Head with the interocular space in 2 about 3 times width of ocellar tubercle; antennae separated by scarcely twice length of joint 1; joint 2 disc-shaped, about twice as long as broad; base of 3 flattened, bulb-like, its slender part tapering, and the terminal joint very short. Legs with spines on all the femora below.

From 2 PP in the South African Museum.

Length of body: about  $7-7\frac{1}{2}$  mm. Length of wing: about 8 mm.

Locality: Zululand: Mfongosi (Jones, April 1916 (type) and Dec. 1911).

## Anthrax mimetes n. sp.

Two QQ in the collections have exactly the same dimidiate wings as described for hemimelas by Speiser and as described for the preceding species. From dimidiatipennis they however differ in the following respects:

Interocular space in front of ocellar tubercle relatively wider about  $3\frac{1}{4}-3\frac{1}{2}$  times width of tubercle; antennae slightly but distinctly wider apart, the distance between them quite twice length of joint 1; joint 2 also relatively longer, its length to breadth being as 3:4 and not as 2:4 as in dimidiatipennis; broad base of joint 3 distinctly more flattened and discoidal, less onion-shaped, its basal margin also more rim-like, with the slender rod-like part relatively more slender, equally thick throughout its length, not tending to taper and with its terminal joint distinctly very much longer, only a little less than half length of

the slender part. Vestiture with the bristly hairs in tuft on sides of tergite I entirely black in lower half; those across hind margin of last sternite distinctly longer, very much denser and comparatively tuft-like; white scales on sides of last two tergites distinctly much broader, more cuneiform and also longer. From Speiser's description of hemimelas (p. 78, Kilimandjaro-Meru Exp., ii, Abt. 10, 1910) it differs in having no orange yellowish scales on sides of tergite I and in having long, snow-white scales on sides of last two tergites.

From 2 PP (type in the Transvaal Museum).

Length of body: about 8-10 mm. Length of wing: about  $8\frac{1}{2}$ -10\frac{1}{4} mm.

Locality: East Transvaal: De Kaap in Barberton (Munro, 9 Oct. 1919)

(type); Pienaar's River (v. Jutrzencka, 1898).

#### Anthrax biflexus Lw.

(Loew, p. 659, Bericht d. Königl. Preuss. Akad. d. Wiss., 1852; Loew, p. 12 and pl. i, fig. 9, Peters Reise nach Mossamb. (Zool.), 1862.)

This is the species, or representatives of it, which Bezzi determined as aygulus Fabr. in his memoirs on South African and African Bombyliidae (p. 123, Ann. S. Afr. Mus., xviii, 1921, and p. 163, The Bombyliidae of the Ethiopian Region, 1924). There is no doubt whatever that this is the species which Loew described from Tette in Portuguese East Africa. As there are many species of Anthrax which have almost identical wing-patterns, it is impossible to verify Bezzi's contention that this species is the West African aygulus s. str. of Fabricius unless the type or material from West Africa on which Fabricius and Wiedemann (p. 261, Aussereurop. Zweifl. Ins., i, 1828) based their descriptions be examined. With the exception of certain species of vertebrates and invertebrates inhabiting the equatorial forests of West Africa and of which some species are still found as relicts in remnants or former eastward extensions of this great equatorial forest in Uganda and Kenya, the fauna of West Africa is entirely different from that of East Africa. Both Fabricius and Wiedemann's descriptions of aygulus are so unsatisfactory that no species can be identified from them with certainty. Moreover according to Wiedemann the original type-specimen is without an abdomen and he had to supplement his description with the help of another specimen in Copenhagen which presumably also came from West Africa. According to him the tufts on sides of tergite 1 in this latter specimen are yellowish and the white scaling posteriorly is only represented band-like on tergites 5-7. He also mentions a black spot or patch on each side submedially and among the ashy grey scaling on frons anteriorly and he gives the length as 7 lines (14.5-15 mm.). In biflexus on the other hand the tufts on sides of tergite 1 are white in upper part and white scaling is conspicuous also on sides of hind margins of tergite 4 as well as on sides of 5-7. There are no black spots on frons anteriorly and the largest specimens only attain a length of about 13 mm. As far as the aygulus and biflexus type of wing-pattern is concerned it is interesting to mention that other African species, such as *caffer* and *triatomus*, Palaearctic varieties of *trifasciatus*, such as *leucogaster*, and according to v. d. Wulp and Bezzi some Oriental forms and even American species, such as *albofasciata*, all show a very similar or identical type of wing-pattern.

If biflexus is specifically identical with aygulus, then it at least merits a distinct varietal status. The South African examples before me are characterized as follows:

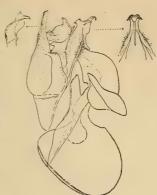
Body predominantly black, the lower parts sometimes more dark brownish or dark castaneous, but usually without any distinct paler hind margins to sternites; femora dark blackish brown to black, only their extreme lower apical parts, especially front ones, more yellowish; tibiae and tarsi more yellowish brownish or dark reddish brownish, apical parts of latter dark. Vestiture predominantly black, only the hairs in front part of collar, on humerus and humeral part of notopleural tuft, some intermixed ones in hinder part of propleural tuft, the plumula and upper half of tuft on sides of tergite I white, but with some of the hairs in plumula sometimes more fulvous; extreme sides of frons and face along margins of eyes with silvery pruinescence, more or less broken up into streaks or spots; scales on frons and face greyish whitish to white; fine scaling on thorax above gleaming golden, reddish golden to brownish golden, the longer ones on sides denser and more reddish golden; a small tuft in front of wings brownish fulvous; some dark or black scales and grevish white ones also present on disc of thorax; fine hair-like scaling on pleurae brownish fulvous or brownish golden; fine scaling on abdomen above mainly black; sparse ones on venter also dark, sometimes gleaming brownish in certain lights; flattened white scales on abdomen as interrupted bands, the patches on sides of tergites 2 and 4 long, dense and conspicuous, and the two submedial ones much smaller, usually without a distinct lateral tuft on sides of 3; white scaling on sides of 5-7 very dense, conspicuous, those on extreme sides long and wedgeor bat-shaped, those on 6 occupying almost entire disc; scaling on legs mainly dark, gleaming graphite-like or brownish. Wings with the dark blackish or dark chocolate infuscation as shown by both Loew and Bezzi, occupying basal part and extending from apical third of axillary lobe obliquely across bases of fourth posterior and discoidal cells to near apex of costal cell; infuscation on middle cross vein confluent with main infuscation, projecting peninsula-like and with a clear gap or even a spot in front of latter which does not extend beyond first basal cell; uninfuscated part of wings vitreous hyaline, with two constant and distinct spots at bases of third posterior cell and upper cubital branch respectively, the former spot usually isolated; stump present at bases of second vein and upper cubital branch, the latter vein markedly sinuous and with a deep, even subangular, loop and in some specimens even with an indication of a stump at this bend; middle cross vein usually a little beyond middle of discoidal cell, sometimes nearer middle; axillary lobe much broader than anal cell. Head with the interocular space in 3 about  $3-3\frac{1}{2}$ , in 2 about  $3\frac{1}{2}-4$ , times width of tubercle; antennae separated by at least twice length of joint 1; joint 2

disc-like, much broader than long; slender part of 3 at least 4 or 5 times length of terminal joint. Legs with spines on all the femora, those on hind ones numerous, irregularly triplicated or even quadruplicated in basal part. Hypopygium of 3 (text-fig. 151) with slender prong-like apical processes; beaked apical joints flattened, with a strong, outwardly directed apical spine and a smaller subsidiary apical spine. Dorso-apical angles of terminal lamellae sharply pointed, hook-like.

In the Transvaal and South African Museums and the Agricultural Department of Southern Rhodesia.

Length of body: about 8-13 mm. Length of wing: about  $10\frac{1}{2}-14\frac{1}{2}$  mm.

Locality: Karoo, Little Karoo, Eastern Cape, Zululand, Portuguese East Africa, Southern Rhodesia and South-West Africa.



Text-fig. 151. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of aedeagal structure of 3 Anthrax biflexus Lw.

From caffer, which this species resembles in wingpattern, it is distinguished in being distinctly larger, in having a very much shorter terminal joint to antennal joint 3, a relatively broader interocular space, no distinct reddish or yellowish hind margins to sternites, a white or pale plumula, black hair on venter, more extensively infuscated axillary and anal cells, more numerous spines on femora, differently shaped beaked apical joints of the hypopygium, etc.

#### Anthrax hessii Wied.

(Wiedemann, p. 289, Aussereurop. Zweifl. Ins., i, 1828.)

As there are several African species with a similar type of wing-pattern, in which the base and costal cell are infuscated and with more or less four spots on cross veins in hyaline part, it is very difficult to determine which species Wiedemann had before him without examining his type-material. Specimens in the South African Museum which Bezzi (p. 123, Ann. S. Afr. Mus., xviii, 1921) referred to this species do not agree with Wiedemann's description of the wing-pattern or the vestiture, and one of these specimens (from Gifberg) has been referred to a new species tetraspilus in which the wing-pattern is more like that of diffusus. Moreover it has no extensive reddish brown, reddish golden or brownish golden hair-like scaling on the body as described by Wiedemann. The other specimen (from Hex River) which more or less agrees with Wiedemann's description of the wing of hessii, however, also lacks the reddish brown hair-like scaling and is referred to the next species. Certain  $\delta \delta$  and  $\delta \epsilon$  in the collections before me, however, appear to agree more with Wiedemann's description than with other species and these are provisionally referred to hessii.

The characters of the latter species, as based on these specimens, are as follows:

Body mainly black; hind margins of tergites on extreme sides below, hind margins of posterior sternites and sometimes to a variable extent sutural parts of pleurae and in 3 hind margins of last two tergites reddish or yellowish reddish; face sometimes brownish or reddish brownish; femora blackish brown to black, their lower surfaces apically more yellowish or reddish, the tibiae and tarsi reddish or even yellowish, apical parts of tarsi dark. Vestiture markedly dense, the insects appearing more hirsute, mainly black above; hairs in collar, on humerus, notopleural part, mesopleural tuft, propleural part, coxae and sternal parts composed of whitish, greyish whitish or straw-coloured ones intermixed with black ones, the pale ones predominating; pale hair on propleural and prosternal parts and in mesopleural tuft sometimes with a slight fulvous tint; hairs on venter gleaming whitish or sericeous yellowish in basal half in 3, sometimes white-tipped, usually dark in apical two-thirds of venter in Q and pale-tipped at base; tufts on sides of abdomen mainly dark or black in Q, their lower parts more sericeous or slightly reddish golden in 3; basal tuft predominantly white in both sexes; plumula whitish, yellowish brownish, or white and dark, or even entirely dark; hair-like scaling markedly developed, more conspicuous than in other species, dense and golden, brownish golden or orange golden on frons and face, conspicuous in facial tuft; flattened scaling behind eyes greyish whitish, slightly tinted yellowish in Q; hair-like scaling on thorax and scutellum above gleaming mostly golden, orange golden to brownish golden, sometimes, however, more greyish yellowish; that on pleurae and coxae longish, dense, grevish yellowish, sericeous yellowish, reddish yellowish to slightly fulvous or reddish brownish; those on coxae sometimes more whitish; hair-like scaling on abdomen above dense, mainly orange or brownish golden in 3, with more dark or black ones among pale ones in 9; flattened white scales present as patches or tufts across hind margins (two discal and submedial ones and lateral tufts) on tergites 2-4 and a medial patch on 3, and the lateral tufts becoming longer and denser posteriorly, those on 6 and 7 in 3 occupying almost entire segments; scaling on venter dense, predominantly whitish or greyish whitish; that on legs mostly greyish yellowish to ochreous yellowish. Wings (pl. i, fig. 12) greyish hyaline and with the yellowish brown or chocolate-brownish infuscations and spots as shown in figure, the basal infuscation usually more translucent in middle of cells and the wing-pattern on the whole more broken up into spots and infusions; bases of both second vein and upper cubital branch with a stump; the latter vein markedly sinuous, its backward loop or bend rather deep; middle cross vein usually slightly before middle of discoidal cell; first posterior cell markedly narrowed apically; axillary lobe very much broader than anal cell. Head with the interocular space in 3 about  $3\frac{1}{4}$  to nearly 4 and in 2 quite 4 times width of tubercle; antennae separated by about, or a little less than, twice length of joint 1; joint 2 disc-shaped; slender part of 3 rather long, its terminal joint about half or a little less length of slender part. Legs

with spines on all the femora, those on hind ones long and numerous, disposed in several rows at base below. *Hypopygium* of 3 (text-fig. 152) with the apical prongs slender, slightly curved inwards apically; beaked apical joints flattened, concave outwardly, the beak curved slightly outwards and backwards and

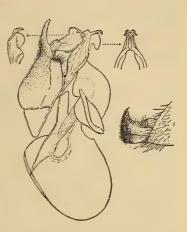
the inner edge markedly jagged; aedeagal complex tridentate apically below, the middle lobe bluntly rounded, and with a median flattened wattle-like lobe below. Dorso-apical angles of terminal lamellae acutely pointed and toothed (lower right-hand figure).

In the British, Transvaal and South African Museums.

Length of body: about 10-13 mm. Length of wing: about 11-14 mm.

Locality: South-western and Western Cape, Meiringspoort in the Swartberge, Little Karoo, North-western Karoo and Namaqualand.

This species appears to frequent the slopes of rocky hills and mountains. Superficially the wing-pattern is very much like that of the Palaearctic varia Fabr. as figured by Engel (pl. viii, fig. 109, Die Fliegen d. Pal. Reg., 1936) and also to a certain extent that of distigma, but it differs from both of these in the denser hair, denser orange golden scaling, etc. From



Text-fig. 152. Side view of hypopygium, dorsal view of right beaked apical joint, ventral view of apical part of aedeagal structure, and (lower right hand) side view of left terminal lamella of & Anthrax hessii Wied.

diffusus and its varieties it may be distinguished by the broad gap in front of infuscation on middle cross vein area and the faintness or absence of extensive infuscation beyond middle cross vein and by the conspicuous orange golden or yellowish scaling on body, etc.

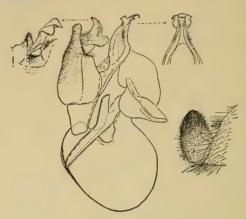
## Anthrax bifarius n. sp.

(Syn. = hessii Bezzi, in part, nec Wiedemann, p. 123, Ann. S. Afr. Mus., xviii, 1921.)

The wing-pattern of this species resembles both that of *biflexus* and *hessii*, but as a species it is apparently nearer the latter. Compared with these two species it differs in the following respects:

From hessii it differs in having less dense hair; distinct, narrow, silvery pruinescence or pruinescent spots on extreme sides of frons and face; in having the hairs on prosternal, propleural, pleural parts, coxae and on entire venter black; fewer intermixed whitish hairs on humeral and notopleural parts; in having only the upper part of tuft on sides of tergite 1 white; hair-like scaling distinctly less dense; the relatively shorter scales on head in front more whitish or greyish yellowish; hair-like scaling on thorax above much shorter, more

greyish to brassy, and that on pleurae much darker, more blackish brown; fine scaling on abdomen shorter, duller, more greyish yellowish or duller ochreous yellowish; scaling on venter finer, dark or mostly blackish, gleaming brownish, not pale and whitish as in hessii. Wings with the infuscation darker, blackish brown to dark chocolate, more uniform, not paler in middle of cells; clear gap in front of middle cross vein area narrower and the spot on latter tending to be connected with basal infuscation, without cloudiness in first submarginal and first posterior cells beyond cross vein. Antennae with the terminal joint of joint 3



Text-fig. 153. Side view of hypopygium, dorsal view of right beaked apical joint, ventral view of apical part of aedeagal structure, and side view of left terminal lamella of & Anthrax bifarius n. sp.

relatively shorter. Hypopygium of 3 (text-fig. 153) differs in having very short, obliquely truncated apical prongs, entirely different type of beaked apical joints; aedeagal complex has no wattle-like process apically below. Last sternite is very much shorter than in any of the species dealt with, and dorso-apical angles of terminal lamellae not very sharply hook-like.

From biflexus it may be distinguished by its less extensive basal infuscation in wings, the infuscation extending only to about middle and not beyond middle of anal and axillary cells; clear gap before discal spot deeper, more distinct even in  $\mathfrak{P}$ , the latter spot thus not appearing as a dentate process; in having three distinct spots on cross veins; in having paler hair-like scaling above; less extensive silvery scaling at end of body; and by its different type of hypopygium.

From 5 33 and 3 QQ (types in the South African Museum and paratypes in the British and Transvaal Museums).

Length of body: about 9-13 mm. Length of wing: about 10-14 mm.

Locality: South-west Cape: Hex River (Dec. 1884) (types); Hex River (L.P.). Karoo: Willowmore (Brauns, 5 May 1927). South-West Africa: Aus in Great Namaqualand (Turner, Dec. 1929); Waterberg (Tucker, Feb. 1920); Otjivarongo (Feb. 1920); Nuragas (Lightfoot, Jan. 1919).

The specimens from South-West Africa appear to be darker and with the infuscations also darker and more blackish brown.

### Anthrax triguttellus n. sp.

A few specimens from the Cape mountains in the collections of the South African Museum appear to differ from all other species with spotted wings. They are characterized as follows:

Body mainly black; legs very dark blackish brown, but the tibiae paler, more dark reddish brownish. Vestiture with the hairs and bristly hairs rather dense and longish, those on sides of abdomen, especially in \( \times, \text{ very dense and somewhat} \) shaggy, the erect ones on abdomen above relatively long and dense; most of these hairs on body above and below mainly black, but with those in collar anteriorly, on humerus anteriorly, numerous ones intermixed in mesopleural tuft, most of those in propleural tuft, the plumula, the greater anterior part of dense tuft on each side at base of abdomen and in Q a few intermixed ones on each side near end of abdomen white; scales on frons and face greyish whitish; those on thorax above and on scutellum greyish yellowish, but with an admixture of fine black ones; hair-like scales on pleurae and coxae greyish whitish or straw-coloured; scaling on abdomen above, other than white ones, and the sparse ones on venter (venter for the greater part smooth and shining) mainly dark or black, a few posteriorly on each side of venter in 3 however whitish; white scaling on abdomen above arranged across hind margins of tergites 2-6 and across entire 7 in ♀ and 2-4 and across entire 5-7 in ♂, those in ♀ more or less broken up into four spots or patches of which those on sides are denser and larger, with this white scaling in both sexes not extending right round to the inflexed sides below; scaling on legs dark, but that on hinder part of front and middle ones greyish whitish. Wings greyish hyaline, with the basal and costal parts yellowish brown or brown, the infuscation occupying and extending from a little beyond middle (3) or about basal two-thirds (2) of anal and axillary cells across spot at base of fourth posterior cell and across base of discoidal cell to costal cell in 3 and in 2 to the large subquadrate discal spot and thence to costal cell, with however the apical and hinder parts of axillary lobe clearer, and a large, broadish, clear area or gap before large discal spot which in case of  $\delta$  extends right across to costal cell isolating discal spot, but in Q only halfway across base of marginal cell, leaving the narrow anterior part of latter cell infused, which infuscation in  $\mathcal{P}$  also extends apically beyond discal spot for a short distance; first basal cell with a whitish streak at its base; cross veins in clear part with three rather conspicuous and largish spots more or less of equal size at bases of second submarginal, second and third posterior cells respectively; upper cubital branch not very deeply bent backwards and its course either straight or not very wavy; first posterior cell rather broadly open and only a little narrowed apically; middle cross vein at about middle of discoidal cell; squamae white, white-fringed; halteres yellowish, with pale yellowish knobs. Head with the interocular space on vertex about 2\frac{1}{2} times width of tubercle in 3

and 3 times this width in  $\mathfrak{P}$ ; antennae with joint 1 rather markedly short; joint 2 even more markedly short, much flattened and lens-shaped, both these joints together in  $\mathfrak{P}$  at least about as long as large, dilated bulbular base of joint 3; the slender part of latter scarcely longer or only a little longer than broad base; terminal joint of slender part of joint 3 about or nearly half length of slender part. Legs with some small spinelets on front femora below; middle ones with about 4–6 spines below; hind ones with about 9 or 10 spines on outer lower part and a row of small ones on inner aspect as well as some apical ones; spicules on tibiae rather well developed and fairly dense; hairs on outer lower part of front and middle femora rather well developed. Hypopygium of  $\mathfrak{J}$  with the apical angles of the clasper-like basal parts produced triangularly pronglike.

From 3 33 and 1  $\circ$  in the South African Museum.

Length of body: about  $7\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}$ -8 mm.

Locality: Western Cape: Wit River Valley, Bain's Kloof near Wellington (Mus. Exp., Dec. 1949) (types); Wit River, Wellington, about 1,500 ft. alt. (Barnard, Nov. 1922).

Easily recognized by the basal and costal infuscation in wings, the large subquadrate discal spot and the three largish spots on cross veins. Its wingpattern resembles that of both *bifarius* and *triatomus*. From the former it however differs by its slightly less dense hairs, fewer or entire absence of pale scaling on abdomen above other than the white ones, much fewer and less developed spines on femora and spicules on tibiae, shorter first and second antennal joints, white plumula, relatively larger spot at apex of discoidal cell, less wavy upper cubital branch, slightly longer prongs of hypopygium, and smaller size.

From triatomus which it even more closely resembles in wing-pattern, it differs in having a smaller and more subquadrate discal spot, more or less equally large spots on cross veins, longer and relatively denser hairs on abdomen, entirely black hairs and scales on venter which is much smoother, mainly black scaling on abdomen above, slightly more numerous spicules on tibiae, distinctly shorter and more triangular prongs to the 3-hypopygium, etc.

## Anthrax consobrinus n. sp.

Body mainly black; extreme sides of tergites below, especially posteriorly, and last sternite tending to be slightly more brownish or castaneous in 3 at least; legs dark or very dark piceous brownish, the tibiae and tarsi slightly paler. Vestiture with the hairs above and below mainly black, but with those in collar anteriorly, on anterior part of humerus, intermixed ones on sides of thorax anteriorly, in mesopleural tuft and in posterior part of propleural tuft greyish whitish, yellowish whitish or straw-coloured; tuft on sides of tergite I white, but with black hairs posteriorly; plumula white; hairs on venter dark; scaling on frons and face yellowish to golden or even orange golden; fine depressed ones

on thorax above fairly or even markedly dense, mainly yellowish to golden or deep golden, reddish or even orange golden, but also with fine black ones to a variable extent; hair-like scaling on pleurae and coxae greyish yellowish, yellowish, reddish yellowish, or sometimes fulvous; fine scaling on abdomen above predominantly ochreous yellowish to orange or reddish yellowish, but also with some fine dark or black scales discally; flattened white scales across hind margins of tergites 2-7 rather dense, especially on sides, more conspicuous and more extensive on last three tergites in 3 and to a lesser extent on last two in Q, the white scaling in Q distinctly less extensive and those even on sides of tergites 2-5 sometimes more yellowish or even ochreous than white and those discally on last three tergites in 3 also tending to be more ochreous; the white scaling not extending right round to inflexed sides below; scaling on venter more hair-like, rather sparse, mainly dark, sometimes appearing brownish to brownish golden; that on legs dark gleaming greyish, but more greyish whitish on outer surfaces. Wings greyish hyaline, with the costal cell and the basal part to a little beyond middle of anal and axillary cells and across apex of second basal cell to costal cell and a large oblong or subquadrate spot on middle cross vein and base of first submarginal cell infuscated yellowish brownish; bases of third and second posterior and second submarginal cells with spot-like infuscations of variable extent; base of first basal cell in infuscated basal part with a distinct whitish streak or spot; base of upper cubital branch with a stump, the vein itself moderately bent hindwards and slightly sinuous; first posterior cell rather widely open and only a little narrowed apically; middle cross vein tending to be a little beyond middle of discoidal cell; squamae whitish, white-fringed; knobs of halteres pallid or whitish posteriorly above. Head with the interocular space in 3 about 21 to nearly 3 times width of tubercle and about 3 to 4 times this width in \$\inp\$; antennae with joint 2 disc-shaped, with broad base of joint 3 roundly bulb-shaped or sub-bulbular, subequal in length or a little shorter than its slender part of which the terminal joint is about or a little less than half slender part. Legs with the fine hairs on front and middle femora below distinct and well developed; spines present on all the femora. Hypopygium of 3 similar to that of the variety (cf. text-fig. 154) described below.

From a 3 and a 9 (holotype in the South African Museum and allotype in the Transvaal Museum).

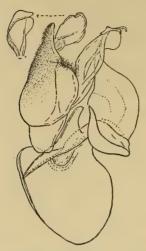
Length of body: about  $6\frac{1}{2}$ -8 mm. Length of wing: about  $7\frac{1}{2}$ -8 $\frac{1}{2}$  mm.

Locality: Nieuveld Karoo: Escarpment in the Beaufort West Div. (Mus. Exp., Nov. 1935) (holotype). Allotype also probably from the Cape or Karoo, labelled 'W.b.3/1/04'.

Some other representatives of this species from various parts of the Karoo in the collections before me, show that this species is variable in the nature and extent of its wing-infuscation and that these specimens constitute a distinct variety as described below.

#### Anthrax consobrinus var. suffusipunctis n.

This variety differs from the typical form in having the infuscation in the wings (pl. i, figs. 13 and 15) distinctly more diffuse and even more extensive to



Text-fig. 154. Side view of hypopygium and dorsal view of right beaked apical joint of & Anthrax consobrinus var. suffusipunctis n.

a variable extent, the clear part even being more greyish hyaline or sometimes even slightly brownish or smoky hyaline; the infuscation itself, apart from the basal and costal yellowish brownish infusion, sometimes extends diffusely to a variable and faint extent along the veins or part of the veins anterior to the spots or infusions on the cross veins, especially the upper and lower veins of the discoidal cell; large discal spot usually more hazy and diffuse and in Q sometimes with the clearer area before it scarcely evident as a clear gap and the base of discoidal cell more extensively infused; spots on cross veins usually larger, more hazy or diffuse, the one at apex of discoidal cell sometimes even coalescing with the discal spot via upper vein of discoidal cell; wings on the whole with a more spotted or even reticulate appearance; veins in apical part of wing around base of upper cubital branch tending to be unstable, the base of second submarginal cell sometimes duplicated or even triplicated and in some speci-

mens a supernumerary cross vein to second vein even divides this part of wing into three submarginal cells. *Hypopygium* of 3 as shown in text-fig. 154 is identical with that of typical form.

From 4 33 and 4 99 in the South African Museum.

Length of body: about  $5\frac{1}{2}-8\frac{1}{2}$  mm. Length of wing: about 6-9 mm.

Locality: North-western Karoo: Calvinia (Mus. Exp., Sept. 1936) (types). Namaqualand: Kamieskroon (Mus. Exp., Sept. 1930). Moordenaars Karoo: Lammerfontein, north-west of Laingsburg (Mus. Exp., Oct. 1952). Koup Karoo: Gamkaspoort (Mus. Exp., Oct. 1952). Tankwa Karoo: Waterval on the Tankwa River (Mus. Exp., Nov. 1952).

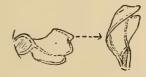
In its wing-pattern this variety resembles hessii to a certain extent. It may however be easily distinguished by its smaller size, less dense hair on pleurae and sides of abdomen, dark hairs on venter, shorter white scales on abdomen, much darker legs with less dense spines and spicules, shorter prongs of hypopygium, etc. From triguttellus which this variety also resembles it may be distinguished by the less delimited and more diffuse basal infuscation in wings, more diffuse spots on cross veins, yellowish or ochreous scaling on abdomen above, slightly shorter hairs on abdomen and slightly larger and longer second antennal joint.

#### Anthrax chalciurus n. sp.

This species resembles consobrinus very closely. Compared with the latter and its variety it differs in the following respects:

Vestiture with the hair on propleural, prosternal and pleural parts entirely dark or black and with less pale hair even in collar and notopleural part; plumula dark or black; fine hair-like scaling on thorax above with numerous black scales in addition to golden ones; fine scaling on abdomen above predominantly dark or black, not orange golden, these scales gleaming greyish brownish in certain lights, black in others; flattened pale scaling across hind margins of tergites, even on sides, less evident and denser ones on last three tergites gleaming

golden or ochreous golden from all angles, not whitish even on extreme sides, only those on sides of tergites 2 and 3 appearing more whitish. Wings with a similar pattern, but without a whitish streak near base in first basal cell; clear gap in front of discal spot slightly less distinct; only two distinct spots present on cross veins in hyaline part, the one at apex of discoidal cell wanting or scarcely perceptible. Head with the antennae slightly less widely apart. Hypopygium appears to differ



Text-fig. 155. Side and dorsal views of right beaked apical joint of & Anthrax chalciurus n. sp.

in having the lower margin of beaked apical joints more distinctly indented just below beak (cf. text-fig. 155) and with the lower extension thus more lobe-like; keel-like extension below apical part of aedeagal complex less developed.

From a 3 in the South African Museum.

Length of body: about  $6\frac{1}{2}$  mm. Length of wing: about  $7\frac{1}{2}$  mm.

Locality: Bushmanland: Aggenys between Springbok and Pella (Mus. Exp., Oct. 1939).

The wing-pattern of this species also resembles that of caffer, but differs in that the main infuscation does not extend distinctly beyond discal spot in marginal cell and the two spots on cross vein are smaller. Moreover the venter is darker and paler or reddish hind margins to sternites and extreme sides of tergites are not conspicuous as in caffer. The hairs on propleurae, pleurae and base of venter are dark and not pale. The scaling on thorax is more distinctly golden and that on abdomen posteriorly more ochreous yellowish. The wing-pattern of this species is also much like that figured for the Palaearctic trifasciata-leucogaster by Engel (pl. viii, fig. 108, Die Fliegen d. Pal. Reg., lief. 99, 1936), but in this case also there is no extension of the infuscation beyond discal spot in marginal cell. Moreover the orange scaling on anterior part of body, the yellowish scaling posteriorly and the dark scaling on abdomen above also distinguish it from the Palaearctic species.

# The muscaria-dentata- and fuscipennis-group

There appears to be great taxonomic confusion as to the identity of the species belonging to this group and until the various members of this group, both Palaearctic and Ethiopian, are thoroughly revised and the types of the respective species, which have been lumped together by various authors, are carefully studied and compared, it is impossible to arrive at any conclusions as to the identity or specific status of these three species. The fact that more than one species of Anthrax often show a similar type of wing-pattern has been the cause of this confusion. This similarity of wing-pattern has led Bezzi and other authors who followed him to conclude that the above mentioned three species are co-specific. From the various descriptions, supplementary comments and illustrations given by the various authors it is by no means certain that dentata and muscaria are synonymous with the fuscipennis which Ricardo described from Sokotra (p. 366 and pl. xxii, figs. 2, 2a, The Nat. Hist. of Sokotra and Abd-El-Kuri, 1903). Still less certain is Bezzi's conclusion (p. 124, Ann. S. Afr. Mus., xviii, 1921, and pp. 166 and 167, The Bombyliidae of the Ethiopian Region, 1924) that certain species from Southern Africa are identical with the Palaearctic fuscipennis. In view of the fact that in the collections before me there are several distinct forms which show the *fuscipennis* type of wing-pattern and that the true identity of fuscipennis is in question, I am provisionally referring the South African forms to separate species as described hereunder.

### Anthrax doliops n. sp.

Body black; sutural parts of pleurae and venter usually more castaneous brownish, especially in 3; hind margins of tergites on extreme sides below and also those on sides of last few tergites and hind margins of sternites vellowish reddish or reddish brownish, more so in 3; femora reddish brownish, dark piceous brownish, or dark blackish brown, their under-surfaces usually paler and tibiae and tarsi more yellowish. Vestiture above and on front half below mainly black, but the hairs in front part of collar, in humeral tuft, on notopleurae, in hinder part of propleural tuft, on basal part of front coxae, numerous ones on mesopleurae, the plumula and tuft on sides of tergite 1 anteriorly whitish or white; those at base or on basal two-thirds of venter gleaming sericeous whitish to yellowish, especially in  $\mathcal{D}$ , these hairs in most  $\mathcal{D}$ , however, darker, more fulvous brownish, even hairs on propleural and coxal parts sometimes with a slight pale fulvous tint; silvery pruinescence or pruinescent streaks present on sides of frons and face and in fresh specimens also with a shining black patch in front of ocellar tubercle and a smaller one on each side midway between antennae and tubercle; fine scaling on thorax above gleaming mostly greyish whitish or pale greyish yellowish, but with fine black hair-like ones discally in bands or patches; hair-like scaling on pleurae and coxae grevish or grevish yellowish in ♀, more brownish and sparser in ♂; fine scaling on abdomen above mostly dark or black across bases or basal halves of tergites, greyish whitish or yellowish in apical halves and across hind margins on sides; snow-white scales dense on sides of tergites, sparse or interrupted and spot-like discally, those on sides of last three tergites very dense in 3, covering most of last two segments, those on sides of 2-4 extending right round to venter; scaling on latter mostly pale or whitish; scaling on legs gleaming greyish or greyish yellowish. Wings vitreous hyaline and with a pattern as shown in pl. i, fig. 14; infuscation on middle cross vein projecting hook-like and with a variable clear gap in front of it, which, however, is never entirely clear to costal cell; main infuscation extending apicalwards in marginal cell some distance beyond discal spot where it usually ends abruptly and without any spots or with scarcely distinguishable cloudiness on basal cross veins of third posterior and second submarginal cells in hyaline part; base of upper cubital branch more often without any stump or with a vestigial one; middle cross vein usually just before middle of discoidal cell; first posterior cell rather broadly open; axillary lobe much broader than anal cell. Head with the interocular space in  $\Im$  about  $2-2\frac{1}{2}$  and in  $\Im$  about  $2\frac{2}{3}-3$ , or even a little more, times width of tubercle; antennae separated by about or a little less than twice length of joint 1; joint 2 disc-shaped; slender part of 3 about  $1\frac{1}{2}$  times as long as terminal joint in 3, and quite 3 times its length in Q. Legs with spines on all the femora below. Hypopygium of 3 (text-fig. 156) with the apical prongs somewhat flattened dorso-ventrally; beaked apical joints as shown in figures; aedeagal complex with a flattened thin, keel-like extension ventrally and apically below. Dorso-apical angles

From 13 33 and 11 99 (types in the South African Museum and paratypes in the Transvaal Museum).

Length of body: about 4-8 mm. Length of wing: about 5-9 mm.

of terminal lamellae produced hook-like.

Locality: Little Karoo: Vanwyksdorp (Mus. Exp., Oct. 1937); Oudtshoorn-Zebra (Mus. Exp., Oct. 1951). Karoo: Willowmore (Brauns, 7 Feb. 1925). Koup Karoo: Koup Siding (Mus. Exp., Oct. 1952); Gamkaspoort (Mus. Exp., Oct. 1937); Buffels River near Seven Weeks Poort (Mus. Exp., Oct. 1937); Buffels River near Merweville (Mus. Exp., Oct. 1940); Klaarstroom-Prince Albert (Mus. Exp., Oct. 1952); Letjiesbos (Mus. Exp., Oct. 1940). Moordenaars Karoo: Lammerfontein, north-west of Laingsburg (Mus. Exp., Oct.



TEXT-FIG. 156. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of aedeagal structure of delayable.

1952). Tankwa Karoo: Kleinbrak near Tankwa River (Mus. Exp., Nov. 1952); Tankwa Karoo (Zinn and Hesse, Jan. 1949). Namaqualand: Goodhouse (Mus. Exp., Nov. 1936). Bushmanland: Henkries (Lightfoot, Oct. 1911) (allotype); Naib between Springbok and Pella (Mus. Exp., Oct. 1939). Northwest Cape: Onseepkans (Mus. Exp., Oct. 1939). Griqualand West: Vryburg (Mus. Exp., Oct. 1939) (holotype); Niekerkshoop (Mus. Exp., Oct. 1939). South-West Africa: Otjituo (Tucker, Jan. 1920).

The Q-allotype and a J-paratype were labelled as fuscipennis Ric. by Bezzi (p. 124, Ann. S. Afr. Mus., xviii, 1921). According to Ricardo's description and

figures (p. 366 and pl. xxii, figs. 2 and 2a, The Nat. Hist. of Sokotra and Abd-El-Kuri, 1903) of fuscipennis s. str. this species differs from the latter in being much smaller, in having many white hairs in collar, on pleurae and prosternal parts and pale hairs on basal two-thirds of venter, and in having a distinct truncated extension of main infuscation beyond discal spot in marginal cell. It appears, however, to be very near dentata Beck. from Tunisia, which species is considered by Bezzi and other authors as synonymous with fuscipennis. According to Sack's description and figure of dentata (p. 529 and pl. 20, fig. 5, Abh. Senckenb. Natur. Ges., 30, 1909) it differs from the latter in having the infuscation extending a little beyond discal spot in marginal cell, a less sinuous upper cubital branch, darker hair and hair-like scaling on pleurae, not entirely black legs and in being distinctly smaller. Compared with Engel's supplementary description and illustrations of fuscipennis (p. 430, Die Fliegen d. Pal. Reg., lief. 99, 1936) this species differs from the latter in having a different type of hypopygium, in not having entirely black legs, its pale or whitish plumula, etc. This new species, however, appears to be very variable in the colour of the hair on the venter and in the extent of the infuscation in wings. Some specimens have a deeper clear gap in front of discal spot and the main infuscation does not extend a little beyond discal spot, in which respect they resemble dentata. In some the infuscation in basal part of axillary lobe is more extensive. In some 33 the hairs in basal two-thirds of venter are pale as in QQ. One form which deviates from the typical form in its wing-pattern merits separate description:

### Anthrax doliops var. gamka n.

This variety differs from the more typical specimens as follows:

Vestiture with the hairs in propleural tuft and prosternal part tinted greyish yellowish, those on venter gleaming pale in basal half and tuft on sides of tergite 1 mostly white; dark scaling across basal half of tergite 2 appearing reddish brownish. Wings with the costal cell and basal part up to level of second basal cell and less than basal half of anal cell and axillary lobe yellowish brownish and not so dark as in the more typical forms, the middle parts of cells in infuscated part usually more or less translucent, with a comparatively small and narrow spot on middle cross vein and base of second vein, this spot not or scarcely touching costal cell and broadly separated from basal infuscation and thus usually appearing isolated. The wing-pattern of this variety resembles those of the Palaearctic species lucida Beck. and trifasciata Meig., but the discal spot is even smaller, more isolated and infusion in anal cell is more developed.

From 8 33 in the South African Museum.

Length of body: about  $3\frac{1}{2}$ -6 mm. Length of wing: about 4-7 mm.

Locality: Koup Karoo: Gamkaspoort (Mus. Exp., Oct. 1937); Koup Siding (Mus. Exp., Oct. 1939); Rooinek Pass near Laingsburg (Zinn and Hesse,

Jan. 1949) (type); Seven Weeks Poort-Rooinek Pass (Mus. Exp., Oct. 1952); Oukloof in the Beaufort West Div. (Zinn and Hesse, Jan. 1949). Tankwa Karoo: Kleinbrak (Mus. Exp., Nov. 1952). Moordenaars Karoo: Lammerfontein (Mus. Exp., Oct. 1952).

### Anthrax doliops var. fulviventris n.

This is another variety of doliops which deserves a separate varietal rank and differs from the typical form and other forms in the following respects:

Body slightly larger and bulkier. Vestiture with the hairs in tufts on sides of tergite I entirely pale, white in front and yellowish or slightly fulvous posteriorly across hind margin; hairs on extreme inflexed sides of tergites and on venter distinctly more fulvous; scaling on abdomen above, apart from white ones across hind margins of tergites, mainly or entirely black. Wings with an identical dark blackish brown infuscation, but infuscation in axillary lobe and anal cell slightly more extensive and cloudiness or indication of spots on basal cross veins of third posterior and second submarginal cells, especially former, more distinct and conspicuous. Head with the interocular space in front of ocellar tubercle in 3 tending to be broader, quite 3 times width of tubercle; slender part of antennal joint 3 distinctly longer, nearly twice length of broad base (only about as long as or only a little longer than base in other forms of doliops).

From 2 33 in the South African Museum.

Length of body: about 9 mm. Length of wing: about 10 mm.

Locality: Koup Karoo: Dikbome (near Merweville) in the Laingsburg Div. (Mus. Exp., Oct. 1952) (type); Rietvlei in the Nieuveld Escarpment (Beaufort West Div.) (Zinn and Hesse, Jan. 1949).

# Anthrax leucurus n. sp.

3-specimen in the collections agrees with the 3 of doliops in most respects, differing only in having the extensions of the winginfuscation beyond discal spot in marginal cell relatively shorter; the discal spot itself narrower; slightly more extensive white scaling on sides of tergite 4; and a different type of hypopygium in which the apical prongs of basal parts are distinctly narrower, less flattened, more rod-like, curving inwards like those of caffer and the beaked apical joints (text-fig. 157) are differently shaped.

Text-Fig. 157. Dorso-apical and side views of right beaked apical joint of hypopygium of & Anthrax leucurus n. sp.

From a 3 in the Transvaal Museum.

Length of body: about 7 mm. Length of wing: about 7 mm.

Locality: Griqualand West: Windsorton (Brauns, 10 Dec. 1920).

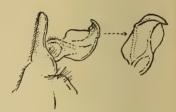
#### Anthrax puncturellus Hesse

(Hesse, p. 23, Mem. do Mus. Dr. Alvaro de Castro, No. 1, 1950.)

This species which I have fully described in the above-mentioned journal is characterized by the somewhat dimidiate infuscation in wings which occupies the basal and costal parts, extending from a little beyond middle of axillary and anal cells obliquely across base of discoidal cell to a large spot on middle cross vein, but with a clear gap or indentation just before latter spot and with the infuscation in marginal cell not or scarcely extending beyond discal spot and also by the presence of a small but constant spot at base of third posterior cell.

It agrees in most respects with *doliops*, but differs in having the main infuscation in wings scarcely extending or only for a very much shorter distance

apicalwards in marginal cell beyond discal spot; in having a small but distinct spot at base of third posterior cell; in having a slightly longer terminal joint to third antennal joint which is about or only a little less than half length of slender part of latter joint; and in having the fine scaling on abdomen above entirely dark or black, especially in  $\mathcal{L}$ , and that across hind margins of tergites and especially terminal tergites and their sides conspicuously white even in  $\mathcal{L}$  and not greyish or yellowish as in some forms of



TEXT-FIG. 158. Side and dorsal views of right beaked apical joint of hypopygium of & Anthrax puncturellus Hesse.

doliops. Hypopygium of 3 differs in having slightly longer and more slender prongs and an entirely different type of beaked apical joints (text-fig. 158) which resemble those of the next species.

In the South African and Rhodesian Museums and the Museu Dr. Alvaro de Castro, Lourenço Marques.

Length of body: about 5 mm.

Length of wing: about  $5-5\frac{1}{2}$  mm.

Locality: South-West Africa (types from Kaross and Ombombo), Portuguese East Africa and Southern Rhodesia.

# Anthrax cuthbertsoni n. sp.

Another species which belongs to the *doliops*-group and differing from the latter species in the following respects:

The wing-pattern is composed of a very dark blackish brown basal and costal infuscation and a large blackish brown spot on middle cross vein and base of second vein and which extends to infuscation in costal cell; no extension of infuscation extends beyond discal spot in marginal cell and clear gap before latter spot more developed, broad, and extending broadly to costal cell; faint spot-like infuscations also present at bases of third posterior cell and upper cubital branch, much like those present in *caffer*, but only very much fainter;

a distinct subopaquely whitish spot or streak also present near base of first basal cell. Vestiture with the hairs in propleural tuft and on pleural parts predominantly dark or black, or at least with much fewer whitish ones: hairs in basal part of venter. however, also whitish as in some 33 of doliops; fine scaling on body above mainly black; white scales on last three tergites conspicuously developed, those on sides being long and broadish and also with some long ones on sides below on tergites 2 and 3. Terminal joint of slender part of antennal joint 3 subequal to length of slender part. Hypopygium of 3 (text-fig. 159) differs from that of doliops in having the apical prongs slender, narrower and not so broad and flattened and an entirely different type of beaked apical joints. The latter differ from those of puncturellus in being broader, the dorsal



Text-fig. 159. Side view of hypopygium and dorso-apical view of right beaked apical joint of 3 Anthrax cuthbertsoni n. sp.

subapical angle sharper and the extended inner dorsal margin more lobe-like and produced.

From 3 33 (type in the South African Museum, paratype in the Agricultural Department of Southern Rhodesia).

Length of body: about  $5\frac{1}{2}$ -8 mm. Length of wing: about  $6\frac{1}{2}$ -8 $\frac{1}{2}$  mm.

Locality: Portuguese East Africa: Pont on the Busi River (Cuthbertson, 30 Nov. 1939). Southern Rhodesia: Bindura (Cuthbertson, March 1932) (type); Chipitani Urungwe (23 Sept. 1938).

# Anthrax eremobius n. sp.

Resembling both doliops and caffer, this species may be distinguished as follows: From the former it differs in having more pale or whitish hairs and hair-like scaling on pleurae and propleural part and on coxae in both sexes; in having pale gleaming hairs on venter and also white hairs on sides of tergites below in 3; more pale or ochreous yellowish scaling on abdomen above and also more whitish scaling on thorax and scutellum; rows of white scales across hind margins of tergites apparently less interrupted discally, the white ones on last three tergites in 3 almost uninterrupted discally; scaling on venter white, but comparatively much denser. Wings with a distinct subopaquely whitish streak near base of first basal cell; clear gap in front of discal spot broader and deeper than in doliops, extending almost to costal cell; spot on middle cross vein and base of second vein without any or with a very short extension apicalwards in marginal cell, in which respect the pattern resembles that of cuthbertsoni. Hypopygium of 3 (text-fig. 160) differs from that of doliops in having the apical prongs longer and more slender; an entirely different type of beaked apical



Text-fig. 160. Side view of hypopygium and dorsal view of right beaked apical joint of & Anthrax eremobius n. sp.

joint; a medial, flattened, wattle-like process below apical part of aedeagal complex and also an accessory lateral hook in addition to the usual lateral one on each side of the ventral apical process of this structure. Dorso-apical angles of terminal lamellae also pointed and hook-like. From caffer it may be distinguished by the absence of spots in hyaline part of wings; absence of a distinct extension of the infuscation in marginal cell beyond discal spot; presence of a more constant and distinct subopaquely whitish streak near base in first basal cell; absence of a stump at base of upper cubital branch; relatively much shorter terminal joint of third antennal joint in relation to slender part; more extensive pale hairs on venter, which in 3 also extend on to extreme sides of tergites; by the white plumula; and by the hypopygium in which the inner margin of the beaked apical joints is more

jagged, the apical part of these joints more truncated, and the medial, flattened, keel-like extension below apical part of aedeagal complex is wattle-like as in hessii.

The wing-pattern also resembles that of *dentata* Beck. as described and figured by Sack. From *dentata* it, however, appears to differ in having mainly pale hairs and hair-like scales on pleural and coxal parts; pale hairs on venter; more fine pale scaling on body above; relatively shorter terminal joint of antennal joint 3; and different type of beaked apical joints of the hypopygium of 3.

From 2 33 and 1 9 (types in the South African Museum).

Length of body: about 6-8 mm. Length of wing: about 6-9 mm.

Locality: Bushmanland: Aggenys (Mus. Exp., Oct. 1939) (types); Pofadder (Mus. Exp., Oct. 1939).

# Anthrax intermedius Hesse

(Hesse, p. 173, Ann. Transv. Mus., xvii, 1936.)

Fully described in the paper cited above, this unique ♀-specimen is characterized as follows:

Body black; hind margins of tergites on extreme sides and those of sternites pale yellowish brownish; tibiae and basal parts of tarsi yellowish brownish; sides of frons and face with silvery pruinescence. Vestiture on body above predominantly black, but hairs in front part of collar, notopleural tuft, mesopleural tuft, propleural tuft, pleurae, coxae, plumula, tuft on sides of tergite 1 and on venter (excepting the black ones on last sternite) white; hair on sides of abdomen rather sparse; scaling above predominantly white, including

longish hair-like ones on sides of thorax and on pleurae; some intermixed fine scales across basal half of tergite 2 and some along middorsal part and transversely across the other tergites ochreous yellowish; broader, flattened, white scales present transversely across hind margins, denser on sides, but apparently

not much denser on sides posteriorly; fine scaling on venter mainly white; that on legs also whitish. Wings hyaline, infuscated yellowish brownish in costal cell and anteriorly in basal half of marginal cell and first basal cell; greater part of second basal cell hyaline and only extreme base of anal cell slightly tinged; infuscation on middle cross vein region slightly darker and more spotlike; another spot at base of fourth posterior cell also indicated; base of upper cubital branch without a distinct stump; middle cross vein distinctly before middle of discoidal cell; the latter rather narrowish; first posterior cell widely open, its sides almost subparallel; axillary lobe broader than anal cell. Head with the frontal groove shallowish; interocular space ( $\varphi$ ) about 3 times width of tubercle; antennae (text-fig. 161) appearing



Text-fig. 161. Side view of left antenna of ♀ Anthrax intermedius Hesse.

narrowly separated, but space quite twice length of joint 1; joint 2 only a little broader than long; slender rod-like part of joint 3 distinctly shorter than long terminal joint, the latter slightly, but distinctly, broadened in the middle and thus slightly broader than apical part of slender part.

Type in the Transvaal Museum.

Length of body: about 7 mm. Length of wing: about 8 mm.

Locality: Bechuanaland: Kuke Pan (Vernay-Lang Kalahari Exp., 21-30 March 1930).

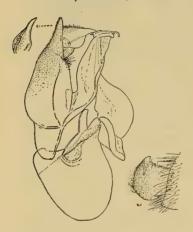
Easily recognized by its wings which are only infuscated along front border, its whitish scaling, the long terminal joint of third antennal joint, etc.

# Anthrax spathistylus n. sp.

Some  $\circlearrowleft \circlearrowleft$  and a  $\circlearrowleft$  which I take to belong to the same species are very near *intermedius* and are characterized by certain distinct sexual differences in the wing-infuscation which are not present in many other species of *Anthrax*. Compared with *intermedius* these specimens differ in the following respects:

Body with the reddish or yellowish hind margins of tergites on extreme sides below in the  $\mathcal{Q}$  more reduced and the hind margins of sternites scarcely or only very narrowly pallid; the  $\mathcal{J}$  on the contrary with these parts conspicuously yellowish reddish, the entire last sternite being reddish; femora dark blackish brown to black, their apical parts below and the tibiae and tarsi yellowish. Vestiture very similar to that of intermedius, but with the propleural tuft tending to be tinted yellowish or slightly fulvous, with some or a few intermixed dark

bristly hairs on front and middle coxae and with the hairs on hinder part of venter darker or dark and pale-tipped, especially in  $\mathcal{Q}$ , these hairs in  $\mathcal{J}$  often gleaming more fulvous or reddish fulvous; scaling on head in front slightly more greyish yellowish or yellowish; that on thorax above composed of whitish, greyish or very pale greyish yellowish and dark or blackish intermixed ones; scaling on abdomen with deeper ochreous or more ochreous brownish ones across basal half of tergite 2 and other tergites, those on sides tending to be concentrated in patches of distinctly darker or blackish scaling; scaling on venter in  $\mathcal{Q}$  at least with more brownish or ochreous ones among the white ones, especially laterally. Wings (pl. i, fig. 16) greyish hyaline, similarly infuscated in  $\mathcal{Q}$ , though second basal cell tends to be more clouded than in  $\mathcal{Q}$  of intermedius; infuscation in  $\mathcal{Q}$  as shown in figure, less uniform, only the costal cell being uniformly infused, the base of marginal cell, extreme base and subapical part



Text-fig. 162. Side view of hypopygium, dorsal view of right beaked apical joint, and (below right) side view of left terminal lamella of *Anthrax spathistylus* n. sp.

of first basal cell and most of the second basal cell being clearer, the infuscation in this part thus reduced to more or less three spots and in addition with faint spots on other cross veins as shown; base of upper cubital branch in 3 also tending to be less bent at right angles and without the vestigial stump present in 9; middle cross vein usually a little before middle of discoidal cell, but sometimes even at about a third of this cell. Head with the terminal joint of antennal joint 3, which is also thickened in the middle, subequal to or slightly shorter than slender part of joint and with the bulb-shaped base of 3 relatively smaller than in other species of Anthrax. Legs with spines on all the femora below, those on hind ones in 3 more numerous. Hypopygium of 3 (text-fig. 162) with the apical prongs rather short, flattened and bluntly rounded; beaked apical joints not flattened,

ending in a beak-like process; lateral flange on each side baso-dorsally of basal strut not extending to apex as in other species. Dorso-apical angles of terminal lamellae bluntly tooth-like.

From 7 33 and 1  $\bigcirc$  (holotype in the South African Museum and allotype in the Transvaal Museum).

Length of body: about 6-9 mm. Length of wing: about 7-9 mm.

Locality: South Cape: Oudebosch on Riviersonderend Mts. (Wood, Jan. 1933) (holotype); Tradouw Pass, Swellendam Dist. (Mus. Exp., Nov. 1925). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936). Natal: Durban (Leigh, 26 Dec. 1906) (allotype).

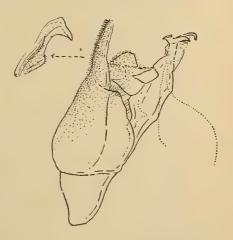
This species appears to be variable as regards certain wing-characters. The wing-pattern of the 3 at least resembles that of the Egyptian *lucida* of Becker, but the latter species according to descriptions has black hair on the pleurae and darker fine scaling on abdomen above. Both *spathistylus* and *intermedius* are characterized by a reduced wing-infuscation, predominantly white or pale scaling on body above and a characteristic, somewhat spindle-shaped, terminal joint.

### Anthrax kaokoënsis n. sp.

A species with uninfuscated wings and which is characterized as follows:

Body black; hind margins of tergites on extreme sides below and those of sternites reddish; femora blackish brown, the tibiae and tarsi reddish brownish. Vestiture with the hair on head and body above mainly black; anterior collar hairs, numerous hairs in mesopleural tuft, those in hinder part of propleural tuft, numerous ones on front coxae and on other coxae, plumula, basal tufts of tergite 1, hairs on venter and some intermixed with the black ones on sides of tergites sericeous whitish; longish hair-like scaling on pleurae and coxae also gleaming sericeous whitish; scales on head, sparse and fine ones and longish ones on thorax laterally whitish, but with fine black ones also present on disc of thorax and scutellum; fine scaling on abdomen above mostly dark, gleaming grevish or grevish brownish; flattened white scaling across hind margins of tergites dense on sides and on last two tergites; scaling on venter mainly white; that on legs greyish whitish to yellowish. Wings vitreous hyaline, only the extreme base, costal cell and narrow anterior basal part of first basal cell yellowish; a faint spot-like infuscation at base of third vein and along middle cross vein and a scarcely perceptible cloudiness on basal cross vein of fourth

posterior cell: veins reddish brown; base of second vein originating at right angles opposite middle cross vein and with a short stump; middle cross vein much before middle of discoidal cell; upper cubital branch sinuous, with a slight backward loop, its base with a vestige of a stump; axillary lobe very much broader than anal cell. Head with the interocular space in 3 not quite 3 times width of tubercle; antennae separated quite 2 times length of joint 1; joint 2 disc-shaped; terminal joint of joint 3 about half length of slender part. Legs with spines on all the femora. Hypopygium of 3 (text-fig. 163) with the prongs of basal parts longish and slender; beaked apical joints laterally compressed, their dorsal and ventral edges expanded and the apical beak curved outwards and back-



Text-fig. 163. Side view of greater part of hypopygium and dorsal view of right beaked apical joint of & Anthrax kaokoënsis n. sp.

wards; aedeagal complex as in other species. Dorso-apical angles of terminal lamellae produced into a point.

From a & in the South African Museum.

Length of body: about 7 mm. Length of wing: about  $7\frac{1}{2}$  mm.

Locality: South-West Africa: Kaoko Otavi in the Kaokoveld (Mus. Exp., March 1926).

Easily recognized by its hyaline and almost uninfuscated wings, in which respect it agrees with *elutus* (Bezz.) described farther on.

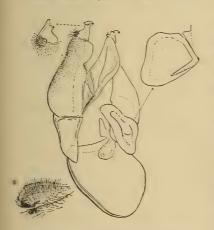
#### Anthrax muticus (Bezz.)

(Bezzi, p. 125, and pl. ii, fig. 22, Ann. S. Afr. Mus., xviii; Bezzi, p. 168, The Bombyliidae of the Ethiopian Region, 1924.)

This species was described as a Spongostylum by Bezzi, but as has been pointed out in the generic descriptions of Anthrax and Argyramoeba the genus Spongostylum, as somewhat ill-defined by Bezzi, Engel and other authors for species in the Old World, is in part the Argyramoeba s. str. of Schiner. At most it may be considered as a sort of composite subgenus. Moreover certain characters of this species point to its inclusion in the Chalcamoeba-section of Sack rather than in the Argyramoeba, Spongostylum and Molybdamoeba-group. The characters of this variable species are as follows:

Body mainly black, but the area around the antennae, face, head below, sutural parts of pleurae and venter (3) may be yellowish or yellowish reddish to a variable extent; first antennal joints yellowish, reddish, dark reddish, or sometimes black; hind margins of tergites laterally below and those of sternites usually distinctly, often broadly, yellowish reddish or reddish; hind margins of posterior tergites, especially in 3, and sometimes even those discally may be reddish to a variable extent; femora dark blackish brown, sienna brownish or even black, their lower apical parts and apices usually paler, yellowish, or luteous to a variable extent; tibiae and tarsi luteous, but apical parts of latter usually dark. Vestiture mainly dark or black; hairs in collar, on humerus, in anterior part of mesopleural tuft, on propleural and prosternal parts, the plumula and dense tufts on sides at base of abdomen snow-whitish; those on propleural and prosternal parts and anterior part of mesopleural tuft sometimes gleaming fulvous yellowish to pale reddish yellowish in certain lights; hairs at extreme base of venter, especially in 3, also sometimes sericeous yellowish or fulvous, those on rest of venter dark; fairly dense scaling on head in front whitish to yellowish whitish, or even yellowish; longish hair-like scales on sides of thorax, on pleurae and coxae snow-white; fine depressed scaling on thorax discally gleaming greyish, greyish yellowish to golden or even bluish opalescent and arranged more or less in three longitudinal bands, separated by bands of dark scales which gleam brownish in certain lights; scaling on scutellum mostly dark, those posteriorly silvery whitish; scaling on abdomen above very dense,

composed of white, greyish white, ochreous yellowish or ochreous brownish and dark or blackish brown ones, the latter arranged across basal half of tergite 2 and as a series of lateral spots which gleam brownish or brownish golden; broader, flattened, white scales arranged across hind margins, more densely laterally, more or less interrupted on tergite 2, very dense, conspicuous, brilliantly silvery, cuneiform and transversely arranged on sides of last two tergites in 3 and narrower snow-white and not transversely arranged in 2; dense white scales on sides of tergites extending round to venter between black tufts; scaling on venter also dense and white; that on femora whitish and vellowish. more yellowish on tibiae. Wings vitreous hyaline, but with the extreme base, costal cell and two large spot-like infuscations across base of third vein to apex of second basal cell and on middle cross vein and base of second vein respectively pale yellowish brownish to dark chocolate-brownish, the spot on middle cross vein usually extending a little apicalwards in marginal cell; clear area separating these spots usually not entirely hyaline, but cloudy to a variable extent, especially in  $\mathcal{Q}$ ; second basal cell also infused to a variable extent, especially in  $\mathcal{Q}$ ; second vein originating obliquely or at right angles opposite or more often a little in front of middle cross vein and more often without a basal stump; middle cross vein usually a little before middle of discoidal cell; upper cubital branch with or without a short basal stump; lower vein of discoidal cell sinuous, sometimes angularly sinuous and sometimes even with a stump at bend; axillary lobe a little broader than anal cell; halteres yellowish or brownish. Head with the interocular space in 3 a little more than  $2-2\frac{1}{2}$ , and in  $9 3-3\frac{1}{2}$ , times width of



TEXT-FIG. 164. Side view of hypopygium, dorso-apical view of right beaked apical joint, ventral view of left lateral strut, and (below left) left terminal lamella of 3 Anthrax muticus (Bezz.).

tubercle; antennae tending to be close together, separated by only a little more than length of joint 1, sometimes however a little less than twice length of latter, joint I sometimes tending to be long, at least as long as 2 and broad base of 3 together; joint 2 subbarrel-shaped; broad base of 3 bulb-like, comparatively small, with a distinct short spine or tooth on inner lower aspect at base of slender part, the terminal joint rather stoutish, blunt, and variable in length, either a little shorter than half or about or more than half length of slender part. Legs with numerous spines on all the femora; tibiae with the upper rows of spicules longer and more numerous. Hypopygium of 3 (text-fig. 164) without any apical prongs; beaked apical joints outwardly bifid apically and somewhat trihedral pyramidal; aedeagal structure with a ven-

trally directed hook-like apical process and on each side an additional blunt hook-like process; lateral struts broad, butterfly-wing-shaped. Last sternite

more or less indented apically, and dorso-apical angles of terminal lamellae not produced hook-like.

In the Commonwealth Institute, British, Transvaal and South African Museums.

Length of body: about 6-11½ mm. Length of wing: about 7-11½ mm.

Locality: Southern Karoo, Koup Karoo, Western Cape, Western Karoo, Namaqualand, Bushmanland and North-west Cape.

In his comparative description Bezzi compared this variable species with Argyramoeba incisuralis (Macq.) of which he suggested it may be only a variety.

This contention which is due to a careless comparison is, however, entirely erroneous for though the wing-pattern of these two species may be superficially alike, the shape of the second antennal joint, the entirely black tufts on side of abdomen, absence of tufts of long, hair-like scales on sides of abdomen, distinct differences in the wings and the different type of hypopygium are all characters which separate it both specifically and generically from *incisuralis*.

### Anthrax elutus (Bezz.)

(Bezzi, p. 125, Ann. S. Afr. Mus., xviii, 1921, as a var. of muticus.)

The type of this species was described by Bezzi as a variety of the preceding species. A comparison of this  $\mathcal{P}$ -specimen with numerous  $\mathcal{P}$  of muticus showing various degrees of variation, however, shows that this variety of Bezzi is sufficiently distinct to be elevated to a separate specific rank. Compared with muticus both sexes show the following characters and differences:

Vestiture on humerus, in collar, entire mesopleural tuft, on coxae and on greater part of venter pale, gleaming pale sericeous yellowish or creamy, there being no intermixed black hairs in mesopleural tuft and on coxae as in muticus; tufts on sides of abdomen not entirely black; a tuft on sides of tergite 2 and some intermixed ones on sides of some of the other tergites whitish or creamy yellowish; scaling on disc of thorax predominantly greyish yellowish, the slightly darker bands composed of slightly deeper yellowish and not conspicuous black scales or black bands; that on scutellum greyish yellowish, not blackish brown or black discally; scaling on abdomen mostly pale, composed of greyish yellowish to ochreous yellowish scales and transverse bands of whitish or pale greyish yellowish scales across hind margins of all the tergites, there being no patches of dark or blackish brown ones. Wings entirely glassy hyaline, only extreme base, costal cell and anterior basal part of first basal cell slightly subopaquely yellowish whitish, not brown or chocolate-brownish, with only very faint, scarcely perceptible, spot-like cloudiness on middle cross vein and basal vein of fourth posterior cell; both the second vein and upper cubital branch without distinct basal stumps; middle cross vein much before middle of discoidal cell, nearer base of latter than in muticus. Head with the interocular space on

vertex in 3 about 2 times and in 9 about 3 or a little more times width of ocellar tubercle; antennal joint 2 sub-barrel-shaped or bead-shaped; bulbular base of joint 3 bulb-shaped, its terminal joint quite half as long as slender part. Legs with fewer spines on hind femora below.

From a 3 and 4 99 in the South African Museum.

Length of body: about 7-9 mm. Length of wing: about 7-9 mm.

Locality: Bushmanland: Jakkalswater (Lightfoot, Oct. 1911) (type); Naib between Springbok and Pella (Mus. Exp., Oct. 1939). North-west Karoo: Augusfontein near Calvinia (Mus. Exp., Sept. 1947). Karoo: Vondeling near Willowmore (Mus. Exp., Oct. 1952).

Easily recognized by its hyaline and almost uninfuscated wings. It can only be confused with *kaokoënsis* from which it is distinguished by the denser hair and scaling, the entirely creamy yellowish hairs in collar, on humerus, in mesopleural tuft and in propleural parts, creamy hairs on sides of some tergites, predominantly pale scaling on abdomen, less sinuous upper cubital branch, more oblique and stumpless base of second vein, less widely separated antennae, more barrel-shaped second antennal joint, etc.

### Anthrax trisinuatus n. sp.

This characteristic species is characterized as follows:

Body black; sides of frons and face silvery pruinescent, the frons in front with bronzy pruinescence; first antennal joints red, piceous reddish to very dark reddish; sutural parts of pleurae dark reddish brown to a variable extent; hind margins of tergites on inflexed sides below and those of sternites fairly broadly reddish or yellowish reddish, and hind margins of last three tergites in 3 also reddish; femora pale reddish brownish to sienna-brownish, sometimes almost blackish brown, their upper surfaces and apices sometimes darkened, the tibiae and tarsi very slightly paler, more yellowish. Vestiture with the hairs and bristly hairs above and below mainly black, but hairs anteriorly in collar, numerous ones on humeral part, in mesopleural tuft, in propleural and prosternal tufts (especially in 3), in tuft on sides of tergite 1 and some intermixed ones among black tufts on sides of other tergites and on inflexed sides below white (tuft on sides of tergite 1 sometimes tinted slightly yellowish); propleural tuft sometimes tinted slightly yellowish, usually also with a few black bristles present on prosternal part of propleural tuft, especially in 9; plumula black; genital brush in Q yellowish; scales on head in front rather sparse, dark or black, gleaming brownish in certain lights; those behind eyes also mainly dark; fine scaling on rest of body above predominantly dark or black, gleaming brownish in certain lights, but with some paler more greyish white ones discally on thorax in front, sometimes ochreous brownish on thorax above and abdomen posteriorly in some specimens; longish and dense hair-like scales on sides and base of thorax and across hind part of scutellum gleaming silvery or snow-white; those on

pleurae and coxae also white or greyish white; broader, white scales on abdomen present across hind border of tergite 2 and interrupted across 3 and 4 where they are dense on sides only and very dense on almost entire last three tergites in 3 where they do not occur transversely, also with a central patch of white scales apically on tergites 2, 3 and 4; scaling on venter mostly white; that on legs grevish white, mainly dark or grevish yellowish on upper and apical parts of femora and on tibiae. Wings (pl. i, fig. 17) vitreous hyaline, but with an anterior and costal very dark blackish brown or very dark chocolatebrownish infuscation extending obliquely across from apex of second basal cell (or base of fourth posterior cell) to near apex of costal cell and also occupying slightly less than basal half of anal cell and anterior basal part of axillary lobe; its hind border with three indentations, in anal cell, at base of discoidal cell and at base of first posterior cell respectively; the infuscation on apical part of second basal cell and on middle cross vein region slightly darker and more spotlike, but without any spots on cross veins in hyaline part except for a faint short streak sometimes present in middle of basal half of first posterior cell; second vein originating obliquely a little in front of middle cross vein, rarely more at right angles or with a stump; middle cross vein usually a little before middle of discoidal cell, sometimes however nearer middle; upper cubital branch usually oblique at base and without a stump, rarely with a vestigial stump; axillary lobe broader than anal cell, entirely hyaline except for a dark anterior streak along infuscation in anal cell; squamae black or dark in basal half, the



TEXT-FIG. 165. Side view of greater part of hypopygium, and dorsal view of right beaked apical joint of anthrax trisinuatus n. sp.

broad hind margin or part whitish and white-fringed; knobs of halteres yellowish in apical part above. Head slightly tumidly prominent and rounded anteriorly; interocular space in 3 at its narrowest part about 2 or a little more times and in 2 about  $2\frac{1}{2}-3$  or nearly 4 times width of tubercle; antennae separated by a space not quite twice length of joint 1; joint 2 sub-barrel-shaped, slightly broader than long; terminal joint of 3 rather stoutish, appearing blunt apically and in 3 distinctly subequal in length to or a little longer, and in 2 a little shorter, than slender part; proboscis short, stumpy, its labellar lobes broadish, spinuliferous

and longer than base. Legs with spines on all the femora, those on hind ones tending to be duplicated basally below in 3; front tarsi a little stouter and more hairy in 2 than in 3. Hypopygium of 3 (text-fig. 165) resembles that of muticus in not having apical prongs; ventral margin of basal parts below beaked apical joints less expanded; beaked apical joints slightly different in shape, not markedly bifid apically; aedeagal structure with only one lateral process on each side apically. Dorso-apical angles of terminal lamellae as in muticus, not produced into a sharp point.

From 29 33 and 34 99 (types in the South African Museum and paratypes in the British Museum and Commonwealth Institute).

Length of body: about  $4-10\frac{1}{2}$  mm. Length of wing: about  $5-11\frac{1}{2}$  mm.

Locality: Bushmanland: Naib between Springbok and Pella (Mus. Exp., Oct. 1939). Namaqualand: Springbok-Kamieskroon (Mus. Exp., Oct. 1939); Kamieskroon (Mus. Exp., Sept. 1930); Bowesdorp (Mus. Exp., Nov. 1931); Steinkopf (Smithers, Nov. 1941). Western Karoo: Calvinia (Ogilvie and Mackie, 11-16 Nov. 1931); East of Pakhuis Pass (Mus. Exp., Sept. 1947). Nieuveld Karoo: Melton Wold in Victoria West Dist. (Mus. Exp., Oct. 1935); Leeukloof in Beaufort West Dist. (Mus. Exp., Oct. 1935). Lammerfontein in the Moordenaars Karoo north-west of Laingsburg (Mus. Exp., Oct. 1952). Koup Karoo: Merweville (Mus. Exp., Oct. 1940); Koup Siding in Laingsburg Div. (Mus. Exp., Oct. 1952) (types); Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Lammerskraal in Prince Albert Dist. (Mus. Exp., Sept. 1947); Klaarstroom in Prince Albert Dist. (Mus. Exp., Oct. 1952); Rooinek Pass-Seven Weeks Poort (Mus. Exp., Oct. 1952). Little Karoo: Oudtshoorn-Zebra (Mus. Exp., Oct. 1951); Uniondale Dist. (Mus. Exp., Oct. 1952). Southern Karoo: Montagu (Turner, 1-21 Oct. 1924). Tankwa Karoo: Waterval (Mus. Exp., Nov. 1952). West Cape: Leipoldtville-Elands Bay (Mus. Exp., Nov. 1948); Citrusdal Dist. (Mus. Exp., Nov. 1948).

Easily recognized and distinguished from all other South African species by the predominantly dark scaling on body and by its characteristic wing-infuscation which is very much like that of Thyridanthrax abruptus or certain species of Exoprosopa (i.e. sigmoidea and tuckeri). The only other species of Anthrax which it resembles very closely and with which it may be confused is a species from Sierra Leone and Nigeria which Bezzi described as Spongostylum subanthrax (p. 169, The Bombyliidae of the Ethiopian Region, 1924). From the latter, however, it appears to differ in not having a small spot-like infuscation at base of third posterior cell, no recurrent veinlets at bases of second vein and upper cubital branch, in having a black plumula, black hair on venter, predominantly dark scaling on head and body above, more yellowish or reddish yellowish legs, etc. This species, like muticus and elutus, are transitional in characters between Anthrax on the one hand and Argyramoeba s. str. on the other.

# Gen. Argyramoeba Schin.

The following species belong to the series which have been referred to *Spongostylum* (nec Macquart) or *Molybdamoeba* by Bezzi and Engel, and which are easily distinguished by the flattened, bowl-shaped or saucer-shaped second antennal joint (text-fig. 134) which is very concave apically and into which the bulbular basal part of joint 3 fits like a ball in a socket. In all the species the long hairs on sides of tergites 2–5 are also in the form of white and black tufts of long, flattened, lanceolate scale-like hairs. The white scales on abdomen posteriorly are usually duller, more cretaceous whitish and not brilliantly silvery

whitish as in the majority of  $\Im \Im$  belonging to the previously described species of Anthrax. The claws of the  $\Im \Im$  in this group are usually more obviously developed and longer than in the  $\Im \Im$ . The hypopygium of the  $\Im \Im$  also differ in many important respects as is evident from a comparison of the text-figures.

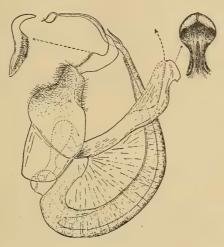
### Argyramoeba punctipennis (Wied.)

(Wiedemann, p. 293, Aussereurop. Zweifl. Ins., i, 1828; Loew, p. 211 and tab. ii, fig. 15, Dipt. Faun. Südafr., i, 1860; Bezzi, p. 618, Trans. Ent. Soc. Lond., 1911; Bezzi, p. 126, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 174, The Bombyliidae of the Ethiopian Region, 1924.)

In view of the fact that there are other species which resemble punctipennis in the number of spots in the wings, it is doubtful whether all the species from other parts of Africa, which Bezzi referred to this species, actually belong to it. The species Anthrax sexnotata described by Macquart in 1855 (p. 77 and tab. 3, fig. 14, Dipt. Exot., Suppl. v) from an unknown country agrees with this species as far as the short description goes and may prove to be merely a synonym of this species. This species is characterized as follows:

Body mainly black; bare part of face, sutural parts of pleurae, especially in 3, sometimes yellowish; antennal joints 1 and 2 to a variable extent, hind margins of tergites, more broadly on sides, entire inflexed sides, broad hind margins of sternites and in 3 usually entire or greater part of venter pale yellowish reddish or ochreous reddish; third antennal joints reddish, sienna-brownish, to blackish brown; femora blackish brown to reddish brown, their under-surfaces and lower apical parts usually yellowish; tibiae and tarsi also pale yellowish reddish or luteous, the apical parts of latter dark. Vestiture with the erect hairs on frons and body above mainly black; those on face in front in & composed of black and pale ones, the latter gleaming yellowish or reddish on sides in front; those on face in ♀ predominantly sericeous yellowish or pale yellowish reddish, sometimes with a few intermixed dark ones; hairs in collar or front part of collar, on humeral part, mesopleural tuft, on propleurae, pleurae, in plumula, in tuft on sides of tergite 1 and on entire venter sericeous whitish, usually with a few dark or black bristles in mesopleural tuft; bristles on coxae usually sericeous or pale yellowish reddish, but with some intermixed black ones in & especially; dense tufts on sides of tergites 2 and 4 and anteriorly on 5 composed of long, flattened, lanceolate, scale-like black hairs (or scales), a few black bristles, and intermixed pale bristles, each of the scale-like hairs (or scales) terminating in a hair-like point; tufts on sides of tergite 3 composed of long similarly shaped white scale-like hairs (or scales) and some intermixed black bristles; bristles on sides of tergites 6 and 7 in 3 gleaming sericeous whitish, those in 9 with some black ones also; scales on head in front dense, yellowish to pale ochreous yellowish, but a spot on each side in front of a black spot a little distance in front of ocellar tubercle and a patch on each side above antennae more whitish like the white scales on face; fine hair-like scales on thorax in form of three

bands of whitish ones separated by reddish brownish ones and as a transverse patch of whitish ones across middle; longer hair-like ones on sides of thorax and also basally whitish; those on disc of scutellum reddish brown, but with a medial band and posterior arc of whitish ones; hair-like scaling on pleurae and coxae white; fine scaling on abdomen above composed of a broadish middorsal band of rufous or reddish brown scales, more yellowish or ochreous yellowish ones transversely across tergites on sides, and longish hair-like whitish ones on sides of tergite 1; broad, flattened, snow-white scales arranged across



Text-fig. 166. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of guide of & Argyramoeba punctipennis (Wied.). (The arrow indicates the normal and natural position of the aedeagal structure in the living insect.)

hind margins, interrupted in middle and dense and conspicuous on sides, scarcely interrupted discally on last four tergites, much denser, longer, broader, and more cuneiform on last three tergites; scaling on venter white, longer on sides; scaling on legs mainly white, more yellowish on tibiae. Wings vitreous to slightly hyaline; extreme base, costal cell and anterior basal part of first basal cell subopaquely yellowish, with 6 or 7 brownish or blackish brown spots as follows: three large conspicuous ones at base of vein between basal cells, at base of third vein and on middle cross vein region respectively, two smaller ones at base of fourth posterior cell and base of upper cubital branch respectively, a still smaller one at base of third posterior cell and sometimes with a faint spot at apex of discoidal cell; veins yellowish or reddish brown; stumps present at bases of both second vein and upper cubital branch; middle cross vein a little before middle of discoidal cell; axillary lobe broader than anal cell. Head with the interocular space in 3 nearly or about 3, and in 2 about 4, times width of tubercle; antennae separated by a little more than twice length of joint 1; joint 2 disc-shaped; base of 3 roundly bulb-shaped, terminal element of 3 a little shorter than slender part in 3, about half or a little less than slender

part in Q. Legs with numerous spines on all the femora below. Hypopygium of 3 (text-fig. 166) large and conspicuous, with longish and stiff hairs on basal parts, without any apical prongs; beaked apical joints more or less wrench- or spanner-shaped, the apical beak curved upwards and outwards; aedeagal complex very conspicuous and characteristic, in the form of a long curved aedeagal part suspended in membranes and a sort of V-shaped guide through which it can slide to and fro; aedeagus itself with a spine-like process near apex beyond which it is in the form of two symmetrical wire-like processes, each of which is spirally twisted apically; guide with a short dentate process on each side apically below; lateral struts very much reduced and rudimentary, in form of two lobes; basal strut bat-shaped, rotated and directed apically within and between the two shell-like basal parts. Dorso-apical angles of terminal lamellae not produced hook-like.

In the Transvaal and South African Museums and Commonwealth Institute.

Length of body: about 8-12 mm. Length of wing: about 9-13 mm.

Locality: South-western Cape, Great Karoo, Nieuveld Karoo, Namaqualand and North-eastern Karoo.

### Argyramoeba punicisetosa Hesse

(Hesse, p. 398, South African Animal Life, ii, 1955.)

Two 33 and a  $\varphi$  specimen which I take to be the same species were described by me in the above-mentioned journal, as a distinct species differing from the very closely related *punctipennis* in the following respects:

Body with the sides of abdomen above distinctly broader reddish yellow; femora with at least apical halves of front and middle ones more extensively reddish. Vestiture with the bristly hairs on face in 3 with constantly fewer black intermixed ones and with the pale ones gleaming more reddish golden; those on face in Q also reddish golden but with more numerous black ones; humeral tuft, mesopleural tuft, propleural tuft and hairs on coxae with distinctly more numerous and more conspicuous pinkish or pale reddish golden bristles and bristly hairs; hair on pleurae appearing more yellowish; scaling on head deeper yellowish; pale scaling on body above deeper reddish or rufous golden and white ones on thorax slightly shorter; snow-white scales across hind margins of tergites shorter, comparatively broader, cuneiform in shape even from tergite 2 to apex and with the dense ones on last three segments also broader and shorter than in punctipennis; long scales or scale-like hairs on sides of abdomen, especially in 3, relatively shorter, broader, more strap-like, blunter, truncated and with much shorter points, not spear-blade-shaped. Antennae with the terminal joint of joint 3 only a little or scarcely longer than slender part. Hypopygium of & (text-fig. 167) entirely different from that of punctipennis (cf. text-fig. 166) with the beaked apical joints different in shape; medial apical part of aedeagal guide spout-like; aedeagus with enormously long wirelike processes beyond spine-like process which is near base and not near apex and it is the long wire-like process and not the main part of aedeagus which is suspended in membranes.

From 2  $\circlearrowleft$  and 1  $\circlearrowleft$  (holotype in the Transvaal Museum and allotype in the Zoological Institute of the University of Lund).

Length of body: about 9 mm. Length of wing: about 10 mm.

Locality: North Transvaal: North-eastern Zoutpansberg Dist. (Breyer, 7 Sept. 1916) (holotype). Northern Rhodesia: Victoria Falls (H. G. L., 31 Aug. 1920). South-West Africa: Anabib (Orupembe) in the Kaokoveld, 100 miles west of Ohopoho (Brinck and Rudebeck, 7–9 June 1951) (allotype).

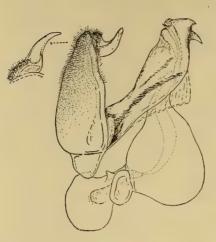
### Argyramoeba robustalis n. sp.

This comparatively large and bulky species Argyramoeba punicisetosa Herresembles both punctipennis and incisuralis. When compared with the former it shows the following distinguishing features:

Text-fig. 167. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of guide of 3 Argyramoeba punicisetosa Hesse.

Body much larger and more bulky; antennal joints 1 and 2 darker; hind margins of tergites only reddish discally from tergite 4 in 3, and then much narrower reddish, not or very obscurely reddish in Q; sides of abdomen less broadly reddish and even apical part in 3 less extensively reddish. Vestiture with most of the pale bristles in humeral tuft, numerous ones in mesopleural tuft, on coxae, across hind margin of tergite 1 and on extreme sides of tergites 4 and 5 below gleaming pinkish or deep reddish golden; most of the pale hairs in collar also tinted reddish golden; black and white tufts on sides of abdomen composed of relatively longer and narrower scale-like hairs; coxae with fewer intermixed black bristles; white scales across hind margins of tergites more elongate and narrower. Wings more greyish hyaline, the base and anterior part tending to be darker, more subopaquely yellowish and in 2 the costal cell and basal and anterior part up to level of apical parts of basal cells and in marginal cell even tinged more yellowish brownish; usually with only 6 spots present, the one on middle cross vein and at base of third vein relatively larger, the spot at apex of discoidal cell entirely wanting. Head with the slender part of antennal joint 3 relatively longer and about 1\frac{1}{2} times (3) and about or nearly 2 times (2) as long as terminal joint. Legs with the front tarsi in 3 distinctly and relatively longer than in punctipennis. Hypopygium of 3 (text-fig. 168) entirely different; beaked apical joints not wrench-shaped; aedeagal structure entirely differently shaped, its basal part globularly dilated as in the incisuralis-group, with its apical half confined to guide, not projecting beyond; guide itself ending apically

in a ventrally directed median spine-like process; lateral struts ear-shaped; dorso-apical angles of terminal lamellae as in punctipennis, not hook-like.



Text-fig. 168. Side view of hypopygium and dorsal view of right beaked apical joint of & Argyrameoba robustalis n. sp.

From incisuralis this species differs in its large size, in having 6, and not 4 or 5, spots in wings (the one at base of third vein included) of which the one at base of third posterior cell is large and not faint or wanting, in having reddish golden bristles on humerus, in mesopleural tuft, on coxae and across hind margin of tergite 1 laterally, more conspicuous red hind margins to tergites and sternites and in the hypopygium (cf. text-figs. 168 and 170) in which the beaked apical joints are relatively longer, narrower and more slender, the apical part of guide is slightly different, the spherical part of aedeagus is larger and the lateral struts broader.

From 1 3 and 2 PP (holotype in the South African Museum and allotype in the Rhodesian Museum).

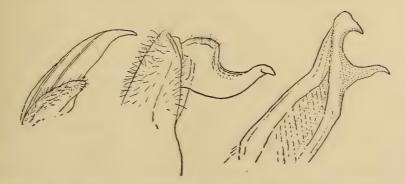
Length of body: about 14-15 mm. Length of wing: about  $16\frac{1}{2}$  mm.

Locality: Zululand: Mfongosi (Jones, April-May, 1934) (holotype). Southern Rhodesia: Bindura (allotype); Bembesi River (Rhod. Mus., April 1937).

# Argyramoeba pycnopeltis n. sp.

A remarkable species which, like the one described below, differs from all the other known South African species in this category in certain important respects. It can only be confused with robustalis and the other species described below and to a lesser extent with forms of incisuralis. Body mostly black; basal part of face, sutural parts of pleurae and postalar callosities dark reddish brownish to a variable extent; antennal joints 1 and 2, broadish hind margins of tergites, especially sides of 2 and 3 and entire margins of the others, more broadly on sides and in 3 almost entire last two tergites, the entire inflexed sides and very broad hind margins of sternites and entire last sternite yellowish reddish; femora yellowish or reddish brownish, their upper surfaces darkened; tibiae and tarsi pale reddish brownish, the apical parts of latter darkened. Vestiture with the bristly hairs on frons to near antennae, those on body above and some on trochanters black; hairs on face, antennae below, sides of face at level of antennae, dense ones on occiput, those in front part of collar, on entire pleural and sternal parts, in plumula, on disc and sides of tergite 1, on venter and on

inflexed sides of tergites and, in 3, on almost entire sides of abdomen posteriorly gleaming sericeous or silvery whitish; some bristles in mesopleural tuft, on coxae and sides of abdomen gleaming pinkish or reddish golden in certain lights and also with a few reddish-tipped dark ones in mesopleural tuft and below wings; scales on middle part of frons greyish, the dense ones on front part, very dense on sides and the dense ones on face silvery whitish; longish hair-like scales on sides of thorax above and very dense ones on pleurae and coxae shining silvery whitish; finer ones on disc of thorax composed of bands of gleaming reddish or brownish golden ones and dark ones, those across base of thorax white, those discally on scutellum brownish or yellowish; fine scaling on abdomen appearing brownish or ochreous brownish, but also with much dark scaling transversely across basal halves of tergites; broadish white scaling on abdomen as in other species; dense tufts of flattened, scale-like hairs (or scales) on sides relatively shorter than in other species, brownish or blackish brown on basal half of tergite 2 and on sides of 4 and snow-white or silvery on sides of apical part of 2 and sides of 3, the individual scales broader and more straplike than in robustalis and incisuralis and their apices more bluntly pointed or even rounded; scales on venter mainly white; that on legs greyish whitish. Wings greyish hyaline; extreme base, costal cell and anterior basal part of first basal cell subopaquely yellowish whitish; four constant and fairly large brownish spots usually present, but sometimes also with a faint one at base of upper cubital branch and another very faint or indistinct one at apex of discoidal cell. Scutellum differing from that of other species in being discally more tumidly prominent or inflated and with the hind margin more distinctly semicircularly rounded. Head with the ocellar tubercle distinctly more elongated, very much longer than broad and the anterior ocellus larger than the hind ones; interocular space in 3 nearly 3, and in 2 a little more than 3 (about 4), times width of tubercle; antennae more widely separated in ♀ than in 3; joint 2 saucer-shaped; slender part of 3 a little more than twice as long as terminal joint in  $\beta$ , nearly or quite 4 times in  $\mathcal{Q}$ . Legs with spines on all the



Text-fig. 169. Dorsal view of right beaked apical joint, side view of same, and side view of guide of 3 Argyramoeba pycnopellis n. sp.

femora below, those on hind ones more numerous, especially basally; front tarsi in Q distinctly less modified and hairy than in other species of this group, with longer and more conspicuous spicules below; claws in G, especially front ones, more sickle-shaped than in Q. Hypopygium of G (text-fig. 169) resembles that of robustalis, but the beaked apical joints are slightly different in shape, having a relatively higher, steeper and narrower crest basally above; ventrally directed processes at apex of guide wider apart and longer; lateral struts smaller, more tongue-shaped, and basal globular part of aedeagus smaller.

From a 3-holotype in the Transvaal Museum and a 2-allotype in the South African Museum.

Length of body: about 12-14 mm. Length of wing: about 12-14 mm.

Locality: Karoo: Willowmore (Brauns, 10 Nov. 1920) (holotype) and 20 Dec. 1921 (allotype).)

#### Argyramoeba aetheocoma n. sp.

This species is very near *pycnopeltis*, agreeing and differing from it in the following respects:

Body also mainly black, but with antennal joints 1 and 2 darker; reddish brownish infusions on pleurae less extensive; coxae and greater part of femora above dark, not reddish brownish; hind margins of tergites slightly narrower reddish. Vestiture very similar, but hairs and scales on face not entirely silvery white, duller whitish and even slightly tinted yellowish and with numerous black hairs across hinder part of this facial tuft; hairs and scales on body below duller whitish, not so silvery, but intermixed bristles in mesopleural tuft and on coxae also sometimes gleaming pinkish golden; fine scaling on body above (where still indicated in specimens) deep reddish or ochreous brownish; flattened white scaling on abdomen above also arranged across hind margins of tergites 2-7 and also denser and longer on sides and inflexed sides but the scales on the whole distinctly shorter and the hairs on sides of abdomen also shorter and sparser; a tuft of blackish brown hair-like scales or scale-like hairs present only on sides anteriorly of tergite 2 and without any distinct dark tuft on sides of 4 and extreme base of 5 as in pycnopeltis; scaling and hairs on venter similar; that on legs greyish whitish, becoming more yellow (or yellowish brownish) in apical two-thirds of femora. Scutellum rather convex discally and semicircularly rounded posteriorly as in pycnopeltis. Wings smoky greyish hyaline, becoming imperceptibly a little darker at base, costal cell, first and second basal cells, basal part of discoidal cell, basal two-thirds of marginal cell, basal part of first submarginal cell and extreme base of first posterior cell; spotlike infuscations on cross veins as in pycnopeltis and also with fainter ones at apex of discoidal cell and base of second submarginal cell respectively; middle cross vein however a little more before middle of discoidal cell. Head with the interocular space on vertex in Q also more or less 4 times width of ocellar tubercle; the latter also slightly longer than broad but on the whole smaller; terminal joint of slender part of antennal joint 3 also markedly small, only about a fourth length of slender part; proboscis apparently a little stouter and plumper. Legs very similar, but with fewer and less numerous spicules on outer upper part of hind tibiae and these in only a single row, not duplicated or triplicated as in pycnopeltis; front tarsi similar and less modified than in other species, the basal joint with conspicuous spicules.

From 2 PP in the South African Museum.

Length of body: about  $11\frac{1}{2}$ -13 mm. Length of wing: about  $11\frac{1}{2}$ -12 mm.

Locality: Upper sources of the Olifants River in the Ceres Div. (Mus. Exp., Dec. 1949).

This is the only known South African species of Argyramoeba which has no distinct dark tuft of hair-like scales or scale-like hairs on sides of tergite 4.

### Argyramoeba incisuralis (Macq.)

(Macquart, p. 57, and tab. 20, fig. 4, Dipt. Exot., ii, 1840; Bezzi, p. 618, Trans. Ent. Soc. Lond., 1911; Bezzi, p. 125, Ann. S. Afr. Mus., xviii, 1921; Bezzi, p. 83, Broteria (Ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 172, The Bombyliidae of the Ethiopian Region, 1924; Bezzi, p. 223, Bull. Soc. Roy. Ent. Egypte, 1924/5; Engel, p. 444, Die Fliegen d. Pal. Reg., lief. 99, 1936.)

(Syn. = mixtus Loew, p. 212 and tab. ii, fig. 16, Dipt. Faun Südafr., i, 1860; Hesse, p. 174, Ann. Transv. Mus., xvii, 1936.)

This species which Macquart described from the Cape is one of the commonest species in all the provinces of the Union and also in South-West Africa, Bechuanaland, Northern and Southern Rhodesia. It is also recorded from other parts of Africa and from Northern Africa, but as there are certain Palaearctic species, such as ocyale Wied. and tripunctata Wied., which have similarly spotted wings, the occurrence of this species and its varieties north of the Sahara, needs more careful investigation and comparison with the original type-material to exclude the possibility that these North African records do not refer to races or varieties of the latter two species. From the description and the figure of the wing, Anthrax biappendiculatus which Macquart wrongly described from Oceania in 1855 (p. 75 and tab. 3, fig. 11, Dipt. Exot., Suppl. v) appears to be a synonym of this species. As this species is found in a variety of topographical, geological, climatic and ecological environments it is very variable and has developed a series of racial or varietal forms, some of which are sufficiently distinct to merit description as separate forms, whereas others are so variable or transitional that they show no constant varietal characters. The semi-arid and drier parts of Southern Africa seem to be the type of environment where this species seems to thrive best and where representatives of it may be obtained almost throughout the year. From Loew's description of mixtus it is quite clear that Bezzi was right

in relegating the latter species as a synonym of *incisuralis*. The chief distinguishing characters of this species, as based on the very large number of specimens in the collections before me, are as follows:

Body mainly black; bare part on face and sutural parts on pleurae sometimes brownish or sienna-brownish to a variable extent; antennal joints 1 and 2, especially 2, tending to be reddish in some specimens; hind margins of tergites, especially on sides, more constantly in hinder part of body in 3, to a lesser extent in 2, the inflexed sides of tergites and hind margins of sternites to a variable extent yellowish reddish or reddish; venter almost entirely yellowish reddish in some 33 whereas in some 99 hind margins of sternites are only obscurely reddish; coxae and femora dark blackish brown or black, lower apical parts of latter and sometimes even apical halves of front femora vellowish to a variable extent; tibiae and tarsi usually yellowish, with the upper surfaces or even entire hind ones and sometimes anterior surfaces of the others and apical parts of tarsi darkened. Vestiture with the hairs on frons and body above mainly black; those on antennae and on face in 3 also black, but with numerous intermixed or even predominantly whitish or sericeous vellowish ones in  $\Omega$ ; hairs in anterior part of collar, intermixed ones on humerus, entire propleural tuft, prosternal hairs, almost entire mesopleural tuft, most of the hairs on coxae, those on pleurae, plumula, tuft on sides of tergite 1, on almost entire venter, on inflexed sides and hairs among white scales on sides of tergite 3 snow- or sericeous whitish; those in mesopleural tuft sometimes appearing more creamy yellowish and usually with some intermixed pale yellowish reddish and some dark ones in the latter tuft, on humerus and coxae; bristly hairs on last sternite usually black, more so in  $\mathfrak{P}$ ; scales on frons and face whitish, yellowish white or golden, denser on sides of frons in front and on face; fine scaling on disc of thorax composed of bands of whitish or greyish and greyish yellowish or yellowish brownish to even reddish brownish or fox-reddish ones, those on sides and across base longer and whitish; some transverse spots or patches of dark scales present in hinder half between wings and on a submedial spot anteriorly on each side and also along middle anteriorly; scales on disc of scutellum ochreous yellowish to fox-reddish, that across apex white or silvery; longish hair-like scales on pleurae and coxae gleaming snow-whitish; fine scaling on abdomen above mostly yellowish, ochreous yellowish, ochreous brownish, reddish to fox-reddish; that along mid-dorsal line anteriorly and submedially on tergite 2 especially reddish, but with a rather conspicuous submedial spot of black or dark scales on each side discally and another on sides of 2 and a small submedial black spot on each side discally of 3 and some obscure dark spots on sides of abdomen; snow-white scales on abdomen arranged transversely across hind margins of tergites, more or less broken up discally along mid-dorsal line and submedially on each side, those laterally on last two or three segments denser, longer, broader, wedge-shaped or cuneiform; dense tuft on sides of tergite 2, one on sides of 4 and part of 5 composed of narrowish, flattened, pointed or sometimes blunt, black, scale-like hairs (or scales) and

black bristles and that on sides of tergite 3 of white scale-like hairs (or scales) and bristles; scales on venter white; those on legs usually whitish or greyish whitish, sometimes yellowish, but those on upper apical aspect of femora usually dark. Wings vitreous to greyish hyaline, the extreme base, costal cell and anterior basal part of first basal cell subopaquely greyish whitish, yellowish to yellowish brownish, or even brownish and in some forms even the basal cells and basal parts of marginal cell tinged yellowish brownish to a variable extent; three brownish or blackish brown spots usually present, in middle of first basal cell, on middle cross vein region and at base of fourth posterior cell respectively. often also with a less conspicuous or very faint infusion at base of third posterior cell, sometimes even with an obscure spot at base of first basal cell and another very faint one at base of upper cubital branch; basal stump present on both second vein and upper cubital branch; base of second vein usually opposite or nearly opposite middle cross vein; the latter usually much before middle of discoidal cell; axillary lobe much broader than anal cell. Head with the interocular space in ♂ a little more than 2 or nearly 3, and in ♀ about 3 to 4, times width of tubercle; antennae not very widely separated, usually less than twice length of joint 1; terminal joint of joint 3 subequal to or a little shorter than slender part in 3, but in 2 usually a little shorter than in 3, sometimes even a third length of slender part. Legs with spines on all the femora below, more numerous on hind ones, especially in 3. Hypopygium of 3 (text-fig. 170) with the

beaked apical joints slightly flattened, their apices directed upwards and outwards and with a crest basally; guide of aedeagal structure with a median ventrally directed spinelike process and above it another process, much like that of *robustalis*; basal part of aedeagus globular or spherical. Dorso-apical angles of terminal lamellae not produced hook-like.

In the Commonwealth Institute, British, Transvaal, Rhodesian and South African Museums, Deutsches Entomologisches Institut, and in the Agricultural Dept. of Southern Rhodesia.

Length of body: about 4-14 mm. Length of wing: about 5-14 mm.

Locality: In all the Provinces of the Union, South-West Africa, Kalahari, Bechuanaland, Northern and Southern Rhodesia and Portuguese East Africa.



TEXT-FIG. 170. Side view of hypopygium and dorsal view of right beaked apical joint of 3 of typical form of Argyramoeba incisuralis (Macq.).

Among the large number of specimens before me at least three more or less distinct varietal forms, which show certain more or less constant characters and

which differ from the more typical form, may be distinguished. As this widely distributed species is very variable and as many transitional forms occur in any large collection of specimens from various localities, the taxonomic value of varietal forms is, however, only of relative significance, serving only as a means of distinguishing different series of specimens which deviate from what is accepted as the more typical form. As members of the South African Museum staff have frequently observed that representatives of this species frequent or visit the burrows of various kinds of solitary bees which make holes in sandy soil or in the banks of dry river-beds in various parts of the Karoo, there is some justification for the inference that this species probably parasitizes various species of solitary bees (see below under the form aridicola).

The chief varietal forms so recognized are as follows:

### Argyramoeba incisuralis f. aridicola n.

This form differs from the more typical form in having the white scaling on head and body above more conspicuously developed; that on thorax arranged in more or less four conspicuous bands of slightly longer and broader hair-like scales; that across hind margin of scutellum markedly dense; that across hind margin of tergites composed of more conspicuous, relatively short, broadish, more or less cuneiform scales and those posteriorly on each side very broad, flattened and more strap-like; the predominantly white scaling renders this form distinctly whiter in appearance; first and second antennal joints constantly paler reddish; hairs on face in both sexes gleam predominantly sericeous yellowish or pale pinkish, or reddish golden, or such pale elements are at least more numerous.

This form chiefly occurs in the more arid or drier parts of South Africa.

In the South African Museum.

Locality: Namaqualand: Spektakel (Lightfoot, Oct. 1890) (3-type); Kamieskroon (Mus. Exp., Nov. 1936) (2-type); Kamieskroon-Springbok (Mus. Exp., Oct. 1939). Bushmanland: Naib between Springbok and Pella (Mus. Exp., Oct. 1939). Nieuveld Karoo: Escarpment near Beaufort West (Mus. Exp., Nov. 1935). Karoo: Murraysburg (Mus. Exp., Nov. 1935); Richmond (Mus. Exp., Nov. 1939); Willowmore (Brauns, 15 Nov. 1919). Koup Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Koup Siding (Mus. Exp., Oct. 1952). Moordenaars Karoo: Lammerfontein (Mus. Exp., Oct. 1952).

This form was found visiting the burrows of the white-haired bees (Fidelia villosa) in the Koup Karoo, in the nests of which they probably develop.

# Argyramoeba incisuralis f. glaucescens n.

This form is characterized by its dull mouse-greyish appearance. From the typical form it differs in having no conspicuous broadish white scales across

hind margins of tergites discally, these white scales distinctly finer, narrower, more slender and hair-like, inconspicuous and absent discally, and on sides where white scaling is present the individual scales are also narrower, more slender, or even hair-like; rest of scaling above also less ochreous yellowish, duller, more dull brownish; hairs on face in both sexes, but especially in  $\mathfrak{P}$ , either predominantly pale or they contain more numerous pale ones; first and second antennal joints also more constantly reddish and not dark as in typical form and the femora are entirely dark or black; the apical part of front and middle ones less extensively reddish; hind margins of tergites and sternites more conspicuously reddish; spots in wings usually smaller and less conspicuous, often very small, and the spot at base of third posterior cell is often scarcely indicated.

Locality: Karoo: Willowmore (Brauns, 3 March 1927) (3-type) and 10 Dec. 1920 (2-type), in the Transvaal Museum); Richmond (Mus. Exp., Nov. 1939); Murraysburg (Mus. Exp., March 1931); Aberdeen (Mus. Exp., Nov. 1935). Western Karoo: Calvinia (Mackie, 11–16 Nov. 1931). Nieuveld Karoo: Escarpment near Beaufort West (Mus. Exp., Nov. 1935); Oukloof in Beaufort West Dist. (Zinn and Hesse, Jan. 1949); Rietvlei in Beaufort West Dist. (Zinn and Hesse, Jan. 1949); Koup Karoo: Gamkaspoort (Mus. Exp., Oct. 1937); Rooinek Pass, Laingsburg Div. (Zinn and Hesse, Jan. 1949); Touws River (Mus. Exp., Oct. 1937); Buffels River (Mus. Exp., Oct. 1937); Koup Siding (Mus. Exp., Nov. 1939); Merweville (Mus. Exp., Feb. 1941); Merweville Dist. (Zinn, Jan.–Feb. 1947); Laingsburg Dist. (Mus. Exp., Feb. 1938). Southern Cape: Robertson (Brauns, 18 Dec. 1926). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936). Bechuanaland: Kaotwe (Vernay-Lang Kal. Exp., 8–12 April 1930).

# Argyramoeba incisuralis f. fumosa n.

This form is fairly distinctive and differs from most other forms in having the wings distinctly darker, tinged smoky greyish or in  $\mathcal{Q}$  even smoky brownish, with the base and anterior costal part darker, more smoky brownish, especially in  $\mathcal{Q}$ , the darker anterior basal part imperceptibly grading into less dark part; spot-like infuscation at base of third posterior cell usually well developed and in addition a more or less constant infuscation or faint infusion also at base of upper cubital branch; squamae distinctly more dirty whitish or even yellowish; bristly hairs on face in both sexes always predominantly or entirely dark or black or at least with very much fewer pale hairs; mesopleural tuft, coxae and trochanters with more numerous black hairs intermixed; last three sternites usually with predominantly black hairs and black hairs even present on sides of venter in some specimens; body, excluding the usual white scales, with much fewer or scarcely any pale scales above, the black or dark ones being very extensive in addition to the usual patches of dark scaling on thorax and abdomen.

This variety seems to occur in the wooded and shrub-grown slopes of mountains and hills.

Types in the South African Museum.

Locality: Western Cape: Olifants River Valley between Citrusdal and Clanwilliam (Mus. Exp., Oct.-Nov. 1931 )(types); Clanwilliam (Brauns, Sept. 1928). Namaqualand: Bowesdorp (Mus. Exp., Sept. 1941). Southern Karoo: Matjiesfontein (Lightfoot, Nov. 1910).

It is quite possible that this form is identical with Bezzi's decipiens (p. 619, Trans. Ent. Soc. Lond., 1911 and, p. 173, The Bombyliidae of the Ethiopian Region, 1924), but as Bezzi's descriptions are very short and unsatisfactory it is impossible to confirm this identity.

Three specimens from Southern Rhodesia in the Rhodesian Museum which have been labelled as *decipiens* by Brunetti and Marshall do not appear to differ from *incisuralis* (Macq.) s. str., and such differences as they show are not of sufficient importance to assign them to even a distinct form.

Species of Anthrax described from South Africa which I have not been able to determine

Anthrax biappendiculatus Macquart, Dipt. Exot., Suppl. v, 75, 93, tab. iii, fig. 11, 1855.

According to Paramonow this species which Macquart described from 'Oceania' is not a Pacific or Oriental form, but an African one. From the figure of its wing and the description as far as it goes, the species appears to be identical with *Argyramoeba incisuralis* (Macquart). (See under the latter species.)

Anthrax maculipennis Macquart, p. 56 and tab. 20, fig. 3, Dipt. Exot., ii, 1840. Bezzi believed this species to be the same as diffusus Wied., but as he himself confused other species with diffusus his conclusion cannot be accepted. Macquart's figure of the wing agrees more with that of phaeopteralis described in this memoir, but as Macquart's description is very brief and unsatisfactory it is impossible to identify his species.

Anthrax punctulata Macquart, p. 56, Dipt. Exot., ii, 1840.

This species which Bezzi catalogued as a synonym of punctipennis (Wied.) may or may not refer to that species. From Macquart's description it is impossible to confirm this. Moreover Macquart's figure of the supposed wing (loc. cit., tab. 19, fig. 7) is not that of the species he described.

Anthrax terminus Walker, p. 252, List. Dipt. Ins. Br. Mus., ii, 1849.